

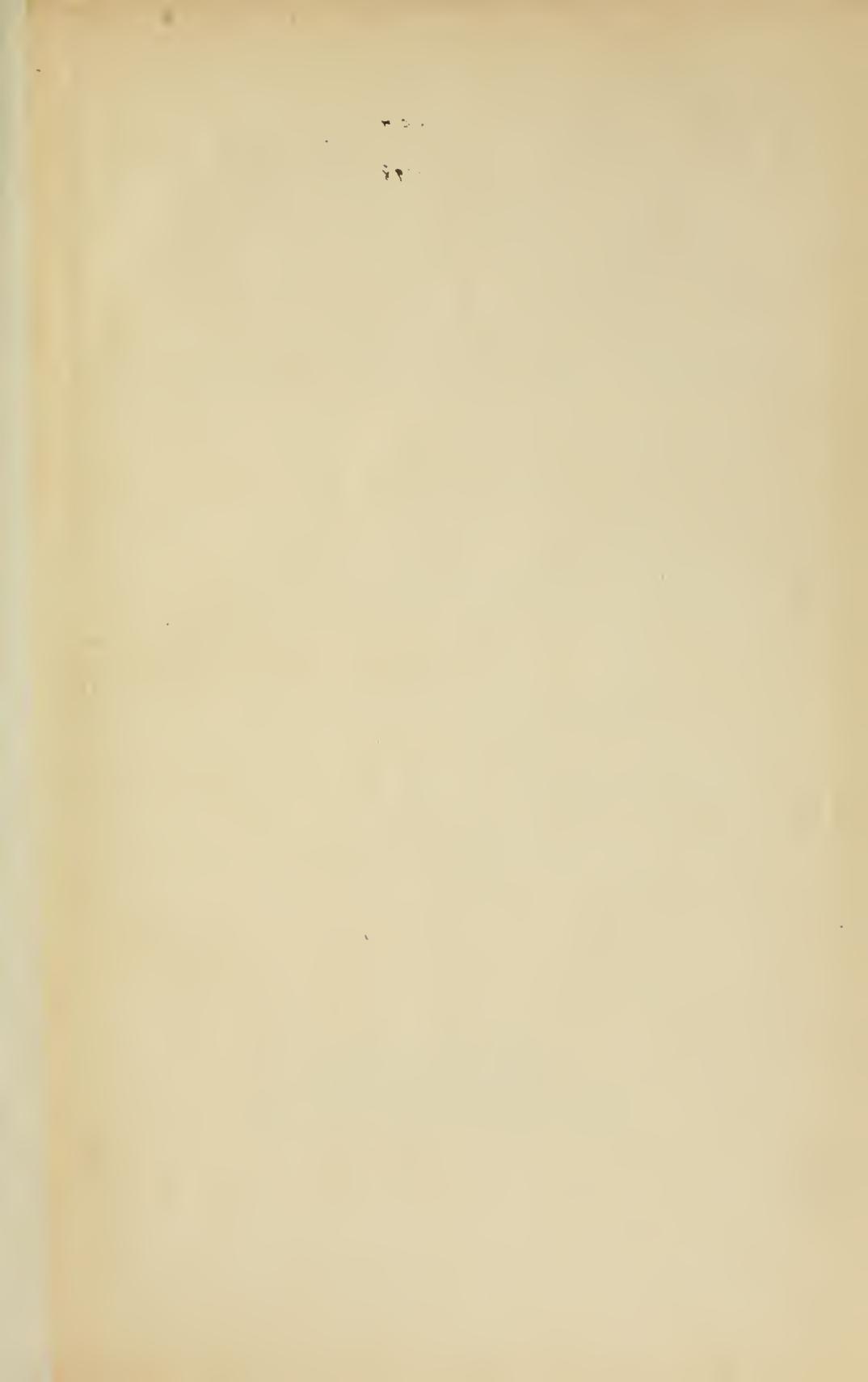


SIXTEENTH ANNUAL REPORT  
OF THE  
PROVINCIAL BOARD OF HEALTH  
OF ONTARIO

—  
1897

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# SIXTEENTH ANNUAL REPORT

OF THE

# PROVINCIAL BOARD OF HEALTH

OF ONTARIO

BEING FOR THE YEAR

1897.

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PRINTED BY ORDER OF  
THE LEGISLATIVE ASSEMBLY.

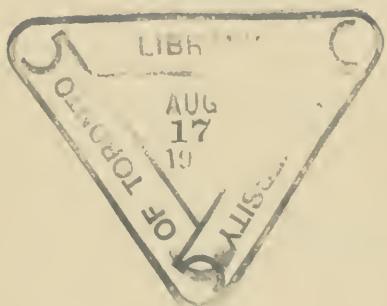
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TORONTO:

WARWICK BRO'S & RUTTER, PRINTERS, ETC., 68 AND 70 FRONT STREET WEST.

1897.



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NOTE.—Report of the City of Belleville is found in tables in index, while the report of the Local Board of the City of Toronto, which is printed as a separate publication by the Health Department was received too late for extracts to be made for insertion in this report. Copies may be obtained by applying to Dr. Charles Sheard, Medical Health Officer, Toronto.

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## APPENDIX.

Tabulated index of reports of Towns, Villages and Townships arranged in alphabetical order... i-clxxxv.

SIXTEENTH ANNUAL REPORT  
OF THE  
PROVINCIAL BOARD OF HEALTH.

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*To His Honour the Honourable SIR OLIVER MOWAT, K.G.M.G., Lieutenant-Governor of Ontario.*

MAY IT PLEASE YOUR HONOUR:

The Provincial Board of Health in presenting to your Honour this its sixteenth annual report has the pleasure of drawing attention to the improved conditions of the public health, as manifested in the reports transmitted from the various local boards. The infrequency, as compared with past years, of two painful and fatal affections, smallpox and diphtheria, is very marked; and although scarlatina and typhoid fever have been prevalent in a few localities, they have been by no means general through the country. The satisfactory state of public health thus indicated may, with justice, be claimed as due to the vigilance and activity of the boards of health in the several localities, guided and instructed as they are from the Provincial Board and by its active secretary.

Consumption, as reported, continues its fatal course, and unless our social and domestic habits change very much, it is to be feared that from this disease there will always exist much destruction of life. The evil may be said to be thoroughly a house disease, and until there comes to be a general and well settled conviction on this point, a conviction that consumption owes its prevalence to house infection and not to heredity, due means will hardly be taken to prevent its communication. Homes and hospitals for consumptives are good in a measure, but the agents of consumption are so abundant, that such institutions cannot have at once a very appreciable effect in diminishing the extent of the malady. The discipline of the "Hospital for Consumptives" will scarcely be maintained in the private house.

Scarlatina has appeared in some localities and the cases have not, in these places, been few, but the disease has not manifested any great malignity.

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Typhoid fever has also had its subjects but its victims have been comparatively rare. Apart from such suffering as may have been associated with it, there is an interest connected with this malady which should always be kept in view, that is, the necessity of pure water for domestic use, as the best preventative. The malady is "water borne," and if all who communicate with, or live in a neighborhood having the benefit of pure water, there will be little if any, typhoid.

The Board has held its four stated annual meetings and in addition one special meeting, this last called on the 10th August, having been rendered necessary for the consideration of certain sewerage operations at Hamilton and Stratford, which had to be proceeded with without delay.

The Appendix to this report will show at large, in what the duties of the Board have consisted during the year. Some of those were satisfactorily dealt with by correspondence, while in others local investigation, by committees of the Board, or by the secretary alone, has been deemed to be necessary.

Nine applications regarding the sewerage of certain cities and towns were examined, discussed and approved of, all of them with certain provisos tending to improvement of the schemes submitted.

There were three communications regarding the enlargement of cemeteries and their possible effect on the sanitary conditions of the neighborhoods interested.

Advice was asked from a number of cities and towns regarding meat inspection and milk inspection, the latter in connection with the "tuberculin test."

Several serious complaints were made regarding nuisances. One on examination by the Board's committee was found to be groundless. Two were discussed and investigation ordered; in a fourth, after investigation in two instances by committee, sworn testimony being taken on the second occasion, the nuisance was abated.

Several applications for approval of public waterworks systems were granted with provisos.

The Board also occupied itself with a discussion on ventilation of public buildings which was based upon a report of its committee on the subject. The report, in copy was ordered to be transmitted to the Minister of Education, and to three gentlemen in the United States who were interested in the question, and the committee was instructed to co-operate with other public boards in this matter.

A discussion was held on the typhoid fever outbreak in Goderich—the medical health officer of Goderich being present and taking part—which occurred early in the year. In connection with the report of the committee on epidemics, papers were read on formaldehyde disinfection by Dr. Cassidy and Mr. J. J. McKenzie, and the Board listened to an address by Dr. Sheard of Toronto on practical disinfection and the difficulties attending it. There was also correspondence read regarding "duty" on formaldehyde disinfectors. The Minister of Customs has allowed apparatus to be brought in free if for public use. On the

subjects of rabies the report of the committee on epidemics was presented and adopted and instructions were given to the committee to prepare regulations regarding the matter.

These items constitute the more important portion of the work of the Provincial Board of Health during the year, apart from the routine work of the secretary in dealing with the multifarious subjects dealt with either by correspondence or by personal investigation. It is hoped that the endeavours of the Board may obtain your Honour's approbation.

Respectfully submitted,

J. D. MACDONALD,

Chairman.

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## PART I.

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# PART I.

## CHAPTER I.

### ANNUAL REPORT OF THE PROVINCIAL BOARD OF HEALTH.

#### REPORT OF THE SECRETARY.

The continued immunity from the prevalence of contagious disease which has marked the history of the several past years in Ontario has been so frequently referred to in the introductory chapter of the annual reports of your secretary, that the remark would seem to savor either of the unreal or the merely perfunctory. But nevertheless, it must again be asserted by referring those who might be inclined to question the statement to the annual reports published by the Registrar-General, wherein every death returned from the 800 municipalities in Ontario is tabulated and classified. The following table, which exhibits in quinquennial periods the total deaths from the several contagious diseases, taken from that report for 1896, must be considered to fully substantiate the remarks which have from time to time been made. The absolute percentage decrease, as shown by the figures, is given without eliminating the further percentage of decrease with an increasing population. The first period is represented by 100 per cent.:

*Table of Deaths in the Three Five year Periods.*

—	—	Smallpox.	Scarlatina.	Diphtheria.	Typhoid.
1st period ...	1882-1886	128	1,929	5,028	3,027
2nd period.....	1887-1891	16	650	4,774	3,060
3rd period .....	1892-1896	7	993	4,774	1,642

It may be stated that the inclusion of all deaths from croup with those due to diphtheria, in the third quinquennium makes the falling off in the last period probably less than it comparatively should be :

—	—	Smallpox.	Scarlatina.	Diphtheria.	Typhoid.
1st period .....	1882-1886	per cent.	per cent.	per cent.	per cent.
2nd period.....	1887-1891	88	67	100	100
3rd period.. .	1892-1896	93	50	6	No decrease. 46

In view of so satisfactory a statement it becomes of much interest and importance to review at the end of the third quinquennium some of the chief factors that have been instrumental in producing so remarkable an improvement in the public health as regards contagious diseases.

An examination of the annual reports of the several years of this period very well indicates the stages in the progress of the work. The report of 1882 outlines the extended efforts of the newly organized Provincial Board of Health to inform itself as to the methods of organization and character of the work of the public health departments of European governments and of those of the several states in the American Union. A very considerable collection of public health reports and books on sanitary subjects were added to the library of the Board, and as much information as possible was collected as to the extent of the work of any municipal sanitary committees then existing in the Province.

On the other hand, the Provincial Board at once commenced the work of dissemination of sanitary information through every means within its power. Pamphlets on "How to Check the Spread of Contagious Diseases," "Aid to the Drowning," etc., were very generally distributed, and arrangements were made with a considerable number of physicians to report the week's cases of contagious disease occurring within their district. From these a "Weekly Health Bulletin" was prepared and distributed to the weekly reporters and public libraries, with the result of drawing public attention very positively to public health matters. The newspaper press were notably instrumental in distributing the information in such bulletins, while arrangements were made with Mechanics' Institutes, school authorities and municipal authorities for public health lectures and sanitary conventions. Indeed, a reference to some of the earlier reports shows a very notable part of the Board's publications to have been the series of papers read at such sanitary meetings, and their perusal indicates how the broader, if less scientific, phases of public health work had already taken a strong hold of the sanitary workers of that time.

The following are the titles of some of the papers:

- "Aims and Objects of Sanitary Conventions."
- "Adulteration of Food."
- "Contamination of Drinking Water."
- "Heating and Ventilation of Buildings."
- "The Public Schools and the Public Health."
- "Prevention and Restriction of Controllable Diseases."
- "The Typhoid Plant, its Nature and Favorite Soil."
- "The Province of Sanitary Journalism."
- "The Requisites of any Good Sanitary System."
- "Infectious Diseases in Schools."
- "Dams and their Influences on Health."
- "The Hygienic Condition of Rural Schools."
- "Why so Many People Die of Consumption."
- "State Medicine, Ancient, Mediaeval and Modern."
- "Unsanitary Conditions, the Causes of Malignant Epidemics."

These are some of the principal papers which appear in those early records, and a perusal of them in the light of present-day knowledge forces real admiration for the accurate ideas and correct lines upon which our sanitarians of fifteen years ago constructed their arguments. It is to the broad-minded and public-spirited citizens of fifteen years ago that this province owes a debt of gratitude for their ungrudging efforts on behalf of the public health, and it is with pleasure that I recall in this place the names of some who no longer are with us, or others whose busy lives have forced them at times unwillingly to leave the work to those boards and officials who have now definite health duties with corresponding powers laid upon them.

It seems not improper in this third quinquennial *resumé* of work done—in a year, that of the Diamond Jubilee of Her Gracious Majesty, marked in many ways as an *annus mirabilis*,—that your secretary should recall names to your recollection, not only from the pardonable feeling of *camaraderie* existing in every liberal profession, but also from the personal sentiments of love and regard he holds for many who have during these fifteen years of his official duties, been sources of inspiration and encouragement in the often difficult tasks which have confronted the Board.

“Forsan et hæc olim meminisse juvabit.”

I recall, as I remember them, those who have “crossed the bar.” Some of these were members of this Board, and in a very marked and unusual degree, one may say of each of them, “*vir propositi ingenii, audax, pertinax.*” Two of these were members of the Board as first organized—Dr. H. P. Yeomans, B.A., of Mount Forest, and Dr. Francis Rae, of Oshawa. Dr. Yeomans (obit, 1890) was a gentleman of true scholarship and broad information. Always a student, though engaged for years in a large medical practice, largely rural, he seems to have garnered information from many sources. Recalling but two of his contributions, there is the report on “School Hygiene,” prepared in 1887, and that on “Nuisances arising from Cheese Factories and some proposed Remedies therefor.” The first of these is one of the most important papers prepared by the Board on this subject, and like the second, displays most admirably the patient manner the writer possessed in dealing with facts in order to arrive at correct conclusions. Dr. Francis Rae (obit, 1896), seems yet scarcely separated from us. A friend of all, generous in his judgment of everyone, the confidant of all his patients, he represented the ideal family physician, and withal the friend of the public. As regards his work on the Board, it was ever characterized by that splendid judgment which his long, intimate and personal knowledge of municipal matters had cultivated. Too constantly occupied with such affairs to be a close student, nevertheless in addition to his constant advice in connection with the Board’s deliberations, his personal labors are embalmed in a notable contribution on “Poisons” in the report of 1886-7.

Dr. H. M. Mackay, of Woodstock (obit, 1890), a member of the Board for two years, had, nevertheless, been a public health man for at least as many years as the Board had existed. A large general practitioner, the respected consultant of a wide area of country, his high moral qualities had from the first forced upon him the consideration of those sanitary problems which are constantly presenting themselves to the observant practitioner in his daily work.

To him is essentially due one of the first public water supplies of this province, as well as the inauguration of the general system of sewerage of Woodstock.

Dr. Egerton Griffin (obit, 1897), of Brantford, may easily claim the position of *primus inter pares* amongst his contemporaries, the working medical officers of the province, not in his ideals necessarily, but in the happy distinction he gained of seeing almost everyone of his progressive schemes for the sanitation of his own city become an accomplished fact within his lifetime. Fortunate in the scene of his efforts, a progressive city with a population homogeneous and educated, his mature experience in public matters, social, educational and municipal; his large freedom from the wearing cares of a general medical practice, and possessing that *tactus eruditus* by which he could so well estimate the tension of the public pulse, all combined with his untiring energy in, and love for, his work, to give him that proud pre-eminence which I feel sure will be yielded to him by every sanitarian in Ontario. With no public water supply, without

a sewer in the city, without a city hospital, with no scavenger system, and the total previous absence of any measures to deal with contagious diseases, Dr. Griffin was successful in establishing every one of these distinct branches of the sanitary service on a permanent and absolutely modern basis. His city has erected public monuments, but were it to appreciate a son of its soil for benefits conferred upon every citizen it would immortalize the memory of Dr. Egerton Griffin in marble or yet more enduring brass.

Mr. Alan MacDougal, C.E. (obit, 1897), was present as an engineer and sanitary adviser in Toronto almost from the organization of the public health department of the province and of the city. He was one of the earliest to labor for the inauguration of a model plumbing by-law for Toronto, and was for a long time secretary of the Canadian Institute, and was ever in closest touch with the hierarchy of sciences, which all contribute so much to sanitary work. Without perhaps the practical or purely utilitarian capacity developed as highly as some others of his confreres, Mr. MacDougal had the essentials of the sanitarian in his very nature. Scholarly, progressive and professional in everything, the high ideals of work he labored for, his distinctive professional attainments and his closest association with all sanitarians of whatever branch of work, endear his memory to us all as one to whom the public health service of Canada owes a debt which cannot be repaid.

Such are some of the workers in the field of public medicine who have passed away, but whose names are held in loving remembrance by those who have known them best.

But if I have taken the liberty of referring to the names of those who are no longer with us, I do not forget the large number of men, whether as medical officers and sanitary inspectors, or as private citizens, who have taken a special interest in public health matters as members of local boards of health. With all the defects incident to the past methods of appointing such boards and their officers, and without alluding to the fact of the present unit of municipal sanitary organization not procuring such remuneration to medical health officers as would enable them to devote all their lives to public medicine, the results of the efforts of such workers throughout the Province, as judged by the remarkably high standard of the general health indicated by the low mortality returns, signify a most remarkable advance in the general intelligence of the public regarding public health matters, and a readiness to submit to those legal provisions, which at times press hardly on individual interests.

In the Annual Report for 1891, p. 1, a *résumé* was given of the work done in various branches of public health work by the Board during the first decade of its existence, 1882-91. It will be of interest to reproduce such with the additions of the last quinquennium.

The following classification may be said to include the principal classes of subjects which the Provincial Board has especially given its attention to; and which may be said, as far as this Province is concerned, to cover the work which to the Provincial Board of Health has seemed to come within the scope of the duties which it was especially organized to carry out:

#### 1. MACHINERY OF PUBLIC HEALTH WORK.

1. Provincial Board of Health.
2. Local Boards of Health.
3. Association of Executive Health Officers.
4. Councils.
5. Boards of Trade.
6. Citizens' Committees.

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**2. COLLECTION OF SANITARY INFORMATION.**

1. Reports of Disease by Physicians and Local Boards.
2. Annual Reports of the Local Boards.
3. Communications from Local Boards and individuals.
4. Investigations by Committees of the Board and its Officers.
5. Reports of Foreign Health Boards.

**3. DISSEMINATION OF SANITARY INFORMATION.**

1. Bulletins of the Board.
2. Annual Reports of the Board.
3. Sanitary Conventions and reports thereof.
4. Communications with Local Boards and individuals.
5. Special Investigations in different localities.

**4. HEALTH LEGISLATION.**

1. Act of Establishment of the Provincial Board of Health 1882
2. Public Health Act of 1884.
3. Amendment of 1885 to the Health Act.
4. Amendment of 1886 to the Health Act.
5. Amendment of 1887 to the Health Act.
6. Amendment of 1889 to the Health Act.
7. Amendment of 1890 to the Health Act.
8. Amendment of 1891 to the Health Act.
9. Municipal and other special Acts referring to health matters.
10. Quarantine Laws of Canada.
11. Inter-provincial and inter-state agreements, regarding notification of outbreaks of disease.

**5. INVESTIGATIONS INTO CAUSES OF DISEASE.**

1. Waste organic matter.
2. Destruction of refuse.
3. Disposal of sewage.
4. Sewerage systems.
5. Sub-soil drainage.
6. Mill-dams, mill-ponds, and drowned lands.

**6. OUTBREAKS OF DISEASE.**

1. Classes of outbreaks.
2. Vaccination.
3. Isolation hospitals.
4. National quarantine system.
5. Inter-state notification.
6. Laws relating to outbreaks.

**7. FOOD AND DRINK SUPPLIES.**

1. Water supplies.
2. Milk supplies.
3. Meat supplies.
4. Flour and other foods.
5. Laws to regulate the same

## 8. SCHOOL HYGIENE.

1. Inspection of schools.
2. Construction, ventilation and drainage of schools.
3. Vaccination of school children.
4. Laws regarding infectious diseases in schools.

## 9. PUBLIC INSTITUTIONS.

1. Outbreaks of disease therein.
2. Sanitary condition of public institutions.
3. Disposal of sewage in same.

In addition to the preceding subjects dealt with in the reports proper of the Board, the following list presents a *résumé* of the reports, addresses, etc., presented to the Board by its committees, or which have been delivered by its members at sanitary conferences or public meetings to discuss health matters.

1882.

Report of Committee to England *re* Sanitary Matters.

Report of the Committee to Boston, New York and Albany.

Report of Delegate to the International Congress of Hygiene to Geneva.

Report of Committee sent to visit Michigan, Detroit and Toledo Boards of Health.

Circular to Clerks of Municipalities asking for information regarding disease, etc.

Circular to Physicians.

Pamphlet on "How to Check Contagious and Infectious Diseases."

Treatment of the drowned.

Report of the Commission to investigate typhoid at Sarnia.

Report of Commission to investigate malaria at Cobococonk and Madoc.

Report of Commission to investigate typhoid at Chatham.

Report of Commission to investigate typhoid at Lambton Mills.

Report regarding water supply and disposal of sewage of Toronto.

Report of Committee on emigrant inspection.

Report of Committee on disease reports.

Report of the Committee on legislation.

Addresses, etc.

By Chairman.

On Food Adulteration.

Contamination of Drinking Water.

Contagion.

Public Schools and Public Health.

Prevention and Restriction of Contagious Diseases.

Sewerage as a Sanitary Measure.

Heating and Ventilating of Buildings.

Typhoid and other Zymotics and how to Prevent them.

School Sanitation : Its Necessity and Methods.

1883

Summer Resorts for Children.

American Public Health Association at Detroit

Report of Committee of Ontario Medical Association *re* Public Health, Vital Statistics, etc.

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1883.

- Directions *re* Asiatic Cholera.  
 On Disposal of Sewage.  
 Report of Leslieville knackery and fat-rendering establishment.  
 Report on condition of Ashbridge's Bay.  
 Report on the smoke nuisance in Toronto.  
 Report *re* saw dust at Parry Sound.  
*Re* a text-book on Hygiene for Schools.  
 Medical inspection of schools.  
 Sanitary arrangements and health conditions of Hamilton schools  
 Report of the London Sanitary Convention.  
 Paper read before the Hamilton Literary Association.

1884.

- The Public Health Act.

1885.

- Report on poisons and chemicals.  
 Report of the London sewage investigation Committee  
 Report of the Committee on epidemics.  
 Report on typhoid fever at Kingston Asylum.  
 Report on the establishment of the Vaccine Farm.  
 Report *re* Infanticide.  
 Report *re* the sewerage system of Woodstock.  
 Report on Maritime and Land sanitation.  
 Report *re* the inspection of cemeteries.  
 Report on the St. Mary's cemetery.

1886.

- Health notes of a trip in Britain.  
 Report *re* abattoirs and slaughter houses.  
 Report *re* nuisances arising from cheese factories, etc.  
 Report of Committee on foods and drinks and ice supplies.  
 Report of Committee on sewerage *re* Stratford and other towns.  
 Report *re* starch factory nuisance at Brantford.

1887.

- Report *re* the quarantine station at Grosse Isle.  
 Report *re* anthrax at Guelph.  
 Report *re* outbreak of diphtheria in Nipissing District.  
 Report *re* Ottawa fever outbreak.  
 Report *re* sewer nuisance at Hamilton.  
 Report *re* water supply for Belleville.  
 Report *re* Berlin and Brantford water-works.  
 Report *re* foods and adulterations, and public milk supplies.  
 Report *re* ventilation.  
 Report *re* poisons.

1887.

- Report *re* grounds for cemetery at Bradford.  
 Report *re* International Conference of State Boards of Health.  
 Report *re* meeting of the American Public Health Association.

1888.

- Report *re* school hygiene.  
 Report *re* quarantine.

1889.

- Report *re* small-pox in Elgin County.  
 Report *re* disease amongst horses at Sanford.  
 Report *re* disposal of sewage in England.  
 Report *re* sewage and water supply on farm at London Asylum.  
 Report *re* porous carbon system (sewerage) at Agricultural College.  
 Report *re* poisons.  
 Report *re* a fat-rendering and hog-feeding establishment in East Zorra.  
 Report *re* Union schools at Simcoe, County of Norfolk.

1890.

- Report *re* sanitary progress in Britain and on the continent.  
 Report *re* physical culture in Normal, Model and Public schools.  
 Report *re* sewerage system for Brantford.  
 Report *re* Conder system of sewerage at Belleville Institute.  
 Report *re* flooding of land along South River.  
 Report *re* public water supply of Orillia.  
 Report *re* Beaverton mill-dam nuisance.  
 Report *re* diphtheria at Kingston Asylum.

An examination of the several chapters of the annual reports of the last four years seems to mark the fact that the scientific work of the Board has been notably assisted by the laboratory. Thus in that of 1892 the results of the first work done in Canada in the diagnosis of tuberculosis in cattle are set forth. In that of 1893, the position of the bacteriological examination of waters is outlined; while some notable results of experiments in steam disinfection, are set forth.

Again in that of 1894, the development of bacteriological investigations is seen in an article dealing with "Toxines and Anti-toxines." This again is followed in 1895 by a chapter on "The Action of Light on Bacteria." In that of 1896, several chapters refer principally to the most recent results of the work in public health laboratories, and indeed, illustrate in the chapter on "Louis Pasteur" the *gradus ad Parnassum* in this difficult study of "the infinitely small." And one study which I find running especially through the reports of the last five years is that dealing with that subject of absorbing interest and importance, *Tuberculosis*.

The following are some of the chapters dealing with the subject :

*The Report of 1890, containing the conclusions of the Committee on Epidemics, re tuberculosis and the tuberculin vaccination of Koch.*

*The Report of 1891—Practical methods of securing safe public milk supplies*

*The Report of 1892—How consumption is spread and some measures for its prevention.*

*The Report of 1893—The air space and ventilation of buildings in relation to the public health.*

*The report of 1894—Influence of climates on prevention and cure of consumption.*

*The Report of 1895—A review of the elements entering into some Canadian climates in relation to Tuberculosis, and,*

*Contagious diseases in cattle and cattle inspection.*

Perhaps the belief may be too sanguine a one, but I, at any rate, am persuaded that the constant placing of the problem, of how to minimize the ravages of tuberculosis, will shortly result in organized measures for dealing promptly and effectively with it in every county of the province.

There is another branch of our public health work which is deserving of attention from its notable development during the past fifteen years, viz.: the installation of public water supplies and of sewerage systems in our incorporated municipalities. The following list includes the particulars regarding the several works in the province established up to the end of 1897. Some ninety public water supplies, very largely under municipal control, exist in Ontario, all but twelve of them having been established since 1882. The table gives the returns made to this Board in reply to a circular sent out in the various municipalities. From column 4 of the table the remarkable information is gathered that \$11,862,162.00 has been expended in Ontario on public waterworks, of which \$7,821,301.00 is a wholly new expenditure since 1882; while of the balance \$4,040,-861.00 for works already established in that year, a very large part is for extensions since that year.

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Table re Waterworks

Place.	The year when waterworks system was established.	The present estimated population.	The present number of water takers.	The approximate cost of the waterworks.
Toronto .....	*1849	200,000	40,000	4,000,000
Hamilton .....	*1857	50,000	13,544	2,000,000
Kingston .....	*1850	19,000	3,100	320,000
London .....	*1878	39,000	7,500	732,351
Ottawa .....	*1874	50,000	10,700	1,636,180
Brantford .....	1889	16,237	2,291	243,218
Belleville .....	1888	10,500	750	200,000
Chatham .....	1890	8,788	830	177,688
Windsor .....	*1873	11,915	2,800	304,000
Guelph .....	*1880	10,741	1,125	144,950
St. Thomas .....	1891	11,000	2,000	150,000
St. Catharines .....	*1878	10,144	2,200	305,000
Stratford .....	1883	10,365	202	104,312
Gananoque .....	1890	3,600	none	23,000
Georgetown .....	1891	1,500	184	40,000
Newmarket .....	1887	2,300	165	27,000
Toronto Junc. ....	1889	4,773	957	150,000
Trenton .....	1895	4,160	120	15,000
Eglington (North Toronto) .....	1891	1,579	123	40,000
Niagara Falls, S. ....	1892	1,404	180	9,000
Galt .....	1891	7,480	1,134	170,000
Niagara Falls .....	1884	4,500	801	96,050
Dunville .....	1891	1,974	70	13,000
Mitchell .....	*1873	2,200	none	15,000
Collingwood .....	1890	5,500	900	75,000
Markham .....	1890	1,100	.....	12,000
Stouffville .....	1887	1,250	just completed	25,000
Lindsay .....	1892	7,000	375	75,000
Cornwall .....	1887	8,326	600	98,000
Leamington .....	1891	2,700	245	18,000
Alexandria .....	1895	1,600	43	29,000
Petrolea .....	1891	4,900	720	180,000
Watford .....	1893	1,300	12	.....
Niagara-on-the-Lake .....	1891	2,000	100	34,000
Essex .....	1891	2,100	270	31,500
Alvinston .....	1895	1,100	.....	1,000
Seaford .....	1879	2,400	only used for fire protection.	11,000
Pt. Edward .....	1880	1,328	10	1,328
Alliston .....	1893	1,900	50	19,000
Teeswater .....	1889	1,100	fire purposes only	11,000
Goderich .....	1889	4,500	400	84,000
Tilbury Centre .....	1898	1,100	120	1,585
Dundas .....	1888	3,040	150	40,000
Welland .....	1888	2,000	375	55,000
Smith's Falls .....	1895	4,200	60	can't say
Pt. Arthur .....	.....	3,000	public hydrant	.....
Renfrew .....	1897	3,100	10	60,000
Paris .....	1885	3,002	400	55,000
Morrisburg .....	1887	1,900	225	30,000

## and Sewerage Systems.

The source of the water supply.	The year in which sewerage was begun.	The miles or feet of sewers laid down to date.	Remarks.
Lake Ontario.....	1840	229 miles	
Lake Ontario.....	1852	50 "	
Lake Ontario.....	1886	17 "	
Springs.....	1896 new	12 "	
Ottawa river.....	1875	43 "	
Springs.....	1889	14 "	
Bay Quinte.....	1864	9,000 feet	
River Thames.....	1856	20 miles	
River Detroit.....	1876	20 $\frac{1}{4}$ "	
Springs and river.....	none		
Kettle Creek.....	1893	10 "	
Lake Erie.....	1870	5 "	
{ Three spring lakes, spring rivulets, river Avon. }			{ Stratford Waterwork Supply Co. }
Gananoque river.....	no general system		
Gravity from springs.....	"		
Artesian wells.....	none	none	
Lake Ontario.....	1892	36,086 feet	
Springs.....	none	none	
Springs in gravel.....	none	none	
Niagara river.....	none	none	
Springs and wells.....	1896	one-third mile	
Niagara river.....	1896	9 $\frac{1}{2}$ miles	
Grand river.....	none	none	
Thames river.....	none	none	
Georgian Bay.....	none	none	
Springs.....			
Springs, gravitation.....	none	none	
Scugog lake.....	not begun	one-third mile	
St. Lawrence river.....	1887	4 miles	
Artesian wells.....	none		
River De l'isle.....	not yet		
Lake Huron.....	1887	5 miles	
.....	1893	$\frac{1}{2}$ mile	
Niagara river.....			
Artesian wells.....	none	drains, 2 miles	Tile drains.
Sydenham river.....	none		
Small creek.....	none	none	
River St. Clair.....	none	none	
Boyne river.....	1883	50 feet	
River.....	none	none	
Lake Huron.....	1886	6 $\frac{1}{2}$ miles	
Creek.....	1888	1 mile	
Gravitation springs.....	none	none	
Lake Erie.....	1888	2 miles	
Rideau river.....		3,800 feet	
Spring Creek.....	1887	5,300 "	
Bonnechere river.....	1897	5 miles	
Springs.....	no system		
St. Lawrence river.....	no system		

Only for drainage.

## Table of Waterworks and

Place.	The year when waterworks system was established.	The present estimated population.	The present number of water takers.	The approximate cost of the water works.
Brockville . . . . .	1884	8,850	1,250	176,624
Kincardine . . . . .	1890	2,332	180	40,000
Sudbury . . . . .	1896	1,500	110	45,000
Thessalon . . . . .	1896	800	100	8,000
Walkerton . . . . .	1891	3,100	292	32,000
Pembroke . . . . .	1894	5,000	400	61,550
Deseronto . . . . .	1896	3,095	110	35,000
Napanee . . . . .	1890	3,000	125	60,000
Wiarton . . . . .	1889	2,200	340	28,200
Ingersoll . . . . .	1890	5,000	350	100,000
Kingsville . . . . .	1894	1,400		20,000
Listowel . . . . .	1888	2,600		
North Bay . . . . .	1892	2,500	430	55,000
Barrie . . . . .	1890	7,500	460	60,000
Penetanguishene . . . . .	1890	2,500	205	30,000
Cobourg . . . . .	1889	4,036	can't say	can't say
Waterloo. . . . .	1889	3,200	120	25,000
Meaford . . . . .	1896	2,000	500	2,300
Berlin . . . . .	1888	9,295	700	140,000
Lucknow . . . . .	1885	1,500	none	10,500
Campbellford . . . . .	1889	2,537	97	24,000
Huntsville . . . . .	1897	1,800	50	22,000
Fort William . . . . .	1897	3,500	just introduced	35,000
East Toronto . . . . .	1888	1,300	232	35,000
Merритon . . . . .	1889	1,800	300	70,000
Beeton . . . . .	1893	780	80	14,500
Amherstburg . . . . .	1891	2,160	550	40,000
Peterboro <sup>1</sup> . . . . .	1882	10,935		
Parry Sound . . . . .	1892	2,500	283	34,300
Shelburne . . . . .	1886	1,400	38	12,000
Walkerville . . . . .	*1877	1,110	360	250,000
Sault Ste Marie . . . . .	1895	3,500	137	100,000
Woodstock . . . . .	1886	9,000	1,110	160,000
Owen Sound . . . . .	*1880	8,000	1,200	110,000
Sarnia . . . . .	*1876	6,439	1,500	95,500
Aylmer . . . . .	1895	2,500	no domestic service	17,000
Perth . . . . .	1897	4,000	just introduced	70,000
Picton . . . . .	1889	3,504	175	34,000
Milton . . . . .	1887 <sup>2</sup>	1,300	100	23,000
Port Hope . . . . .	1894	5,000	150	57,500
Brampton . . . . .	1882	3,300	270	82,000

NOTE.—\* 12 systems  
78 systems

Sewerage Systems.—*Concluded.*

The source of the water supply.	The year in which sewerage was begun.	The miles or feet of sewerage laid down to date.	Remarks.
St. Lawrence river .....	1888		
Lake Huron .....	none	none	
Ramsey lake .....	1896	12,600 feet	
Lake Huron .....	1893	$\frac{1}{2}$ mile	
Springs .....	1895	4,185 feet	
Ottawa river .....			No regular system.
Bay Quinte.....	1890	5,080 feet	
Napanee river .....	1889	1 mile	
Colpoys Bay.....			No regular system.
Springs .....	none		
Lake Erie .....	none		
Spring Creek.....	none		For fire purposes only.
Lake Nipissing .....	none	none	
Artesian wells .....	1891	17,646 feet	
Springs .....	1885	one-third mile	
Lake Ontario .....	1893	$1\frac{1}{2}$ mile	
Artesian wells and springs .....	1895	17,000 feet	
Well .....	none		
Springs and artesian wells .....	1890	9 miles	
Spring Creek.....		600 feet	For fire only.
River Trent .....	none		
Lake Vernon .....	none		
Kaministiquia river .....	some in 1890	2,400 tile, 15,800 wooden sewers.	
Springs .....	none		
Lake Erie .....	none		
Spring creeks .....	none	none	
Detroit river .....		5,000 feet	
Otonabee river .....	1892	$4\frac{3}{4}$ miles	Waterworks owned by Co.
Georgian Bay .....		none	
Gravitation, supplied by windmill pump.	none	none, other than private drains.	
Detroit river .....	1890	$4\frac{1}{2}$ miles	Difficult to estimate cost, large outlay for Power canal.
St. Mary river .....	1895	5,400 feet	
Springs .....	1880	$7\frac{1}{2}$ miles	
Springs .....	1886	$3\frac{1}{2}$ miles	
River St. Clair .....	1881	30,000 feet	Including mains.
Catfish creek, fed by wells..	none	none	
River Tay .....	not yet begun		Including water power to run electric light.
Bay Quinte.....			
Springs .....			
Lake Ontario.....	1897	10,000 feet	
Small lake .....		800 feet	Sewer pipes being laid.

established prior to 1882.  
established since 1882.

The tabulated returns given above indicate more clearly perhaps than anything else, the extent of municipal development during the past fifteen years. If we were to collate the municipal expenditures on public buildings, streets, sidewalks and parks during the same period, we would probably find an equally accurate index of the advances of our people in municipal work; but it has been noted that water-works and sewers, owing perhaps to their demanding a larger immediate expenditure, belong to the later stages of municipal evolution. We see from the above tables that all the thirteen cities have established a general system of water-works, and almost all have a general sewerage system. Of the 98 towns in the Province, 57 have water-works: and of the villages, 20 have works of a smaller character.

That these public works have played a notable part in promoting the general health is very well illustrated by the notable fall in the mortality from typhoid fever during the third quinquennium as seen in the table on page 11.

Another illustration of municipal evolution may be seen in the work of providing hospitals. Whatever may be said of such institutions as tending to pauperize a certain class of the community, or to influence the practice of medicine, looked at as merely life-saving institutions, such hospital development undoubtedly has played, and is playing an important part in public health work.

The following table illustrates the development during the last twenty years of the hospitals of the Province. Thus in the year 1878 there were ten hospitals with 4,372 patients treated in the hospitals, receiving aid from the Ontario Government, while in 1897 there were 19,617 patients in hospitals receiving Government aid, and at the beginning of 1898 there were forty-seven hospitals on the list of those receiving a provincial grant:

Hospitals. 1898.	Location.	Hospitals.	Location.
General Hospital . . . . .	Toronto.	General Hospital . . . . .	Stratford.
Grace (Homeopathic) Hospital . . . . .	"	Amasa Wood Hospital . . . . .	St. Thomas.
Hospital for Sick Children . . . . .	"	General and Marine Hospital . . . . .	Owen Sound.
St. Michael's Hospital . . . . .	"	Sick Children's Hospital . . . . .	Ottawa.
City Hospital . . . . .	Hamilton.	General Hospital . . . . .	Chatham.
St. Joseph's Hospital . . . . .	"	General Hospital . . . . .	Sudbury.
General Hospital . . . . .	Kingston.	General Hospital . . . . .	Huntsville.
Hotel Dieu Hospital . . . . .	"	Woodstock Hospital . . . . .	Woodstock.
General Protestant Hospital . . . . .	Ottawa.	Berlin and Waterloo Hospital . . . . .	Berlin.
Roman Catholic Hospital . . . . .	"	Maternity Hospital . . . . .	Ottawa.
House of Mercy Lying-in-Hospital . . . . .	"	Sarnia Hospital . . . . .	Sarnia.
General Hospital . . . . .	London.	Toronto West (General) . . . . .	Toronto.
St. Joseph's Hospital . . . . .	"	St. Joseph's Hospital . . . . .	Sudbury.
General and Marine Hospital . . . . .	St. Catharines.	General Hospital . . . . .	Rat Portage.
Galt Hospital . . . . .	Galt.	General Hospital . . . . .	Barrie.
General Hospital . . . . .	Guelph.	General Hospital . . . . .	Cornwall.
St. Joseph's Hospital . . . . .	"	Hotel Dieu Hospital . . . . .	"
General Hospital . . . . .	Pembroke.	St. Luke's (General) . . . . .	Ottawa.
General Hospital . . . . .	Mattawa.	1878.	
J. H. Stratford's Hospital . . . . .	Braintree.	General Hospital . . . . .	Toronto.
St. Joseph's Hospital . . . . .	Port Arthur.	City Hospital . . . . .	Hamilton.
Belleville Hospital . . . . .	Belleville.	General Hospital . . . . .	Kingston.
St. Vincent De Paul Hospital . . . . .	Brockville.	Hotel Dieu Hospital . . . . .	"
General Hospital . . . . .	"	General Protestant Hospital . . . . .	Ottawa.
General and Marine Hospital . . . . .	Collingwood.	Roman Catholic Hospital . . . . .	"
Nichols' Hospital . . . . .	Peterborough.	General Hospital . . . . .	London.
St. Joseph's Hospital . . . . .	"	General and Marine Hospital . . . . .	St. Catharines.
Hotel Dieu Hospital . . . . .	Windsor.	General Hospital . . . . .	Guelph.
St. Joseph's Hospital . . . . .	Chatham.	St. Joseph's Hospital . . . . .	"

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While the Charity Aid Act provides that general hospitals must not receive smallpox cases, and while they do not receive other contagious diseases into the general wards, yet a number of them have either specially constructed wards for the isolation of such cases, or have separate buildings in which are received such diseases as diphtheria, and to some extent scarlatina. Several cities have separate contagious disease hospitals under the immediate control of the Local Board of Health. Of these there are :

- Isolation Hospital, Toronto, forty beds. Control of Local Board of Health.  
Hospital for Sick Children, Toronto, isolation wing.  
Infants' Home, Toronto, isolation wing.  
City Hospital, Hamilton, two separate isolation buildings.  
St. Joseph's, Hamilton, one isolated ward.  
General Hospital, Kingston, isolated ward.  
Hotel Dieu, Kingston, isolated ward and new wing under construction.  
General Hospital, London, isolation wing under construction.  
St. Joseph's, London, isolated annex.  
General Hospital, St. Catharines, isolated ward.  
General Hospital, Guelph, isolation building and annex.  
St. Joseph's, Guelph, isolated ward.  
General Hospital, Mâttawa, separate isolation building.  
Belleville Hospital, Belleville, isolated annex.  
General Hospital, Brockville, isolated ward.  
St. Vincent de Paul, Brockville, isolated ward.  
Nicholls Hospital, Peterborough, isolation annex.  
St. Joseph's, Peterborough, isolated ward.  
Hotel Dieu, Windsor, isolated ward.  
General Hospital, Chatham, separate isolation building.  
St. Joseph's, Chatham, isolated ward.  
St. Thomas, an isolated Hospital for smallpox only.  
General Hospital, Owen Sound.  
Ottawa Hospitals, three separate isolation hospital buildings  
General Hospital, Huntsville, isolation building.

Owing to the terms of the Charities Aid Act, and to some degree, perhaps, to a provision of the Public Health Act, there is not so evident an extension of the municipal idea of an hospital or building for contagious diseases as could be wished. In a number of instances, however, buildings exist, some of them permanent and others of a temporary character, for the treatment of contagious diseases. The desirability of local boards of health having small isolated buildings to which cases from small houses, or indeed anywhere, can be promptly removed, has been again and again pointed out in the reports of past years, and it is with pleasure your secretary is able to state that the practical utility and economy of the measure is yearly being more clearly appreciated, even by the boards of small municipalities. Local boards now clearly realize that once a patient and its nurse are isolated thus, the anxiety regarding second cases in a house and the dissemination of the disease beyond this house are practically removed. That the local boards are taking advantage of their powers to establish such hospitals, at least as temporary ones, is illustrated by the fact that during the past year it was only necessary for your secretary, in visiting several small towns and villages where contagious disease had broken out, to point out

how readily a rented house in the suburbs could be made available for the purpose, to have action taken at once to secure control of such and to send there the child and mother in cases where isolation was difficult in the home. Such have been of signal use in stopping outbreaks without any notable spread. Local boards are still requiring to understand more fully both their powers and duties in dealing with such outbreaks, and it is seldom indeed, that the town council will raise any serious objection to the expenditures when they see the practical utility of the method. It further becomes of the greatest value in supplying a good reason for local boards insisting on the prompt notification by physicians of cases under their charge. Systematic efforts on the part of local boards with regard to the notification by physicians, householders and school authorities of cases has everywhere resulted in a very general compliance with the law. There is now practically nowhere any serious idea of questioning the reasonableness and the utility of what is known as compulsory notification in those municipalities in Ontario where public health work has been seriously undertaken.

That the legislature has realized and kept pace with the advances in public opinion with regard to the public health is evident from the enactments which have been passed from time to time since 1884.

Thus in 1885, additional powers were given to the:

1. *Provincial Board to compel local action in outbreaks of diseases.*
2. *An Order-in-Council to deal with smallpox.*

In 1886—

4. *Powers of compulsory vaccination extended to Local Boards of Health.*
5. *Powers to expropriate land for isolation hospitals.*

In 1887—

6. *Notification by teachers of contagious disease in schools.*
7. *Regulation of Ice Supplies.*
8. *Inspection of Slaughter Houses and Dairies.*
9. *Control of vaccine by Provincial Board of Health.*

In 1889—

10. *Sanitary control of Unorganized Districts by Stipendiary Magistrates having been made health officers of the Provincial Board.*

In 1890—

11. *Control by Inspection of animals, meat and milk affected with tuberculosis. Increased powers of Local Inspector and by the Provincial Board.*
12. *Scientific examinations of diseased tissues in laboratory of Provincial Board established in the same year.*
13. *An Order-in-Council making regulations for control of outbreaks of diphtheria.*

In 1891—

13. *Powers given to County Councils to appoint County Health Officers.*
14. *Powers given to the Lieutenant-Governor-in Council to appoint Health Officers in Unorganized Districts.*
15. *Making Secretary of Provincial Board of Health Deputy-Registrar-General, with one office and staff.*

In 1893—

15. *The Local Boards of Health in Townships, on resolution, may require physicians attending any contagious disease to affix the placard within twenty four hours.*
16. *An Order-in-Council dealing with inspection and control of Ice Supplies.*
17. *An Order-in-Council making regulations for control of outbreaks of Asiatic Cholera.*

In 1895—

18. *Powers to appoint members of Local Boards of Health for three years.*
19. *Extension of powers of Provincial Board of Health in the matter of control of Public Waterworks and Systems of Sewerage.*
20. *The prohibition of feeding offal to hogs except after being boiled and only when fresh.*
21. *Extension of power to inspect nuisances beyond limits of any municipality.*

In 1896—

22. *Extension of powers of sanitary inspection to Chief Ranger of Algonquin Park.*
23. *Act to inspect all meat by establishment of municipal abattoirs and to inspect and test milch cows by the tuberculin test.*
24. *Act for regulation and inspection of Bake Shops.*
25. *Compulsory provision requiring Division Registrars of every municipality to send to Secretary of Provincial Board of Health a return of the number of deaths from each of the several contagious diseases for the preceding month*

The reference to the legislation of the past fifteen years amply illustrates the wide field which the Legislature has intended the work of the provincial and local boards of health to cover; and as will be seen by reference to the powers to appoint county health officers, it has clearly indicated a direction in which the larger and more effective work of municipal health authorities can be developed. The references herein already made to the more accurate and scientific work of the Provincial Board, owing to the institution of its laboratory, further point out the means by which the work of county health officers can and will become of incalculable value to those municipalities which take advantage of the powers given to county councils.

It would appear most essential that the Provincial Board take steps to bring the benefits of such a measure before the several county councils. It would mean the appointment of young physicians trained in biological science as well as in medicine, and who would devote all their time and energies to scientific work, both in their laboratory and in visiting the township and other municipalities within their jurisdiction, investigating the causes of disease, and by accurate local knowledge would devise measures both for suppressing outbreaks and for preventing them. This work would extend to the assistance of patrons of cheese-factories, to veterinarians in dealing with animal diseases, as well as to physicians who may require accurate scientific examination in doubtful cases of diseases.

Well-waters and town waters would be investigated, suspected milk and meats would be examined, and the work of the laboratory might well be extended to the investigations of coroners associated with deaths where violence has been suspected. But your Board has rather to find means for the accomplishment of such desirable results than to be convinced of what has more than once been pointed out by your secretary as the ideal position

towards which public health in Ontario should endeavor to attain. In keeping with such development, it is only natural to expect that the facilities provided for enlarging this Board's laboratory work should be extended. To-day, as will be illustrated by the study of a single outbreak of diphtheria, found in chapter III. of this report, the whole time, practically, of the Board's laboratory staff is devoted to routine work, even though it be of the greatest practical value. Much more, indeed, is needed with laboratories developing on every side, in foreign countries and in the United States, and even in neighboring provinces. The Provincial Board of Health laboratory should be equipped to the extent that it will form the nucleus of a hygienic institute. It should have facilities for the preparation of vaccine of the highest possible aseptic quality; it should, like Massachusetts, be manufacturing antitoxines of known standard qualities, and tuberculin to an extent equal to every demand which may be made upon it, and it should be in a position to supply the Pasteur treatment to every person in the Province, or in Canada, bitten by a rabid dog, and should further be a centre for purely experimental work in making studies along the new lines which are constantly opening up in the field of biological science as applied to the public health.

## CHAPTER II.

### LABORATORIES OF HYGIENIC RESEARCH.

The need and utility of such laboratories have been indicated in the preceding chapter, and what is being done elsewhere in this field of public health work must prove of interest. I shall refer first and particularly to the State of Massachusetts, for two reasons: first, because it has a population of but little more than the Province of Ontario, and second, because it is in the evolution of state sociology, the only State on the continent fairly comparable with the Province of Ontario.

There is, however, an essential difference in other respects between Massachusetts and Ontario, which must be taken into account when comparisons are made regarding certain features of State government. Thus, while Massachusetts has a population of 2,500,000, and Ontario 2,233,000, the area of Massachusetts is but 8,040 square miles, while Ontario has an area of 228,000 square miles. Again, while Massachusetts was an old State in 1788, having been a colony since 1620, with 100,000 in population in 1700, Ontario was in 1788 first divided into five judicial districts under the justices of the Quarter Sessions and English law extended to it. But further, while the population of Massachusetts has 56 cities and towns, each with a population of over 5,000, with nine-tenths of the population living in these towns and cities, and having an area of but 3,188 square miles and 588 persons to a square mile, amounting to a total of 1,876,185, Ontario had in 1893, by the municipal assessment, the population divided as follows:—

In 13 cities (10,000 and over) . . . . .	385,019
In 233 (towns and villages) . . . . .	422,041
In 450 townships (rural) . . . . .	1,103,433

The bureau of vital statistics began in 1855 in Massachusetts, while the registration of marriages began in Ontario in 1849, and births and deaths in addition only in 1869. The rural populations may be compared by a comparison of the value of the cattle population in each. Thus in 1893 the total value of live stock in Massachusetts was \$14,200,178, while in Ontario the value of the stock was \$116,070,902. Or again, the total assessed acreage in Massachusetts is 5,145,600, while in Ontario it is 23,172,408 acres in the rural area alone, with an extent of unassessed territory not yet under municipal organization of 122,000,000 acres.

From this *résumé* it seems evident that the work which a state or provincial Board has to perform varies notably in the two areas. The problem in Ontario is doubtless a simple one, so far as the sanitation of urban populations is concerned. On the other hand it may well be that with the much larger urban population in Massachusetts, the local health organizations are enabled to have a better paid class of health officers to devote all or most of their time to public health work. That such, however, demand constantly direction and assistance from state officers is seen in the tabulated statement of work done by the state board of health, as published in the Report for 1896, as compared with similar work in Ontario.

I have placed the several works in the two parallel columns:—

Amount of Laboratory work.	Massachusetts.	Ontario.
No. of samples of drugs examined.....	8,338 .....	Work done by Federal (Dominion) Department of Internal Revenue. Act passed in 1895, requiring Provincial Board to examine patent medicines. No laboratory for the work, as yet provided.
Samples of milk examined. . . . .	4,484 .....	None chemically. 4 bacteriologically.
Number of prosecutions for adulterations.....	75.....	Work done by Federal authorities.
Number of packages of Anti-toxine sent out. (Prepared by State laboratory.....	3,245 .....	120 bottles purchased from foreign sources only and distributed.
Number of bacterial cultures for diagnosis of diphtheria.....	1,469 .....	642.
Number of examinations for tuberculosis.....	124 .....	119.
Number of examinations of malarial blood for plasmodia .....	57.....	Typhoid blood examinations, 78.
Number of cases of infectious diseases recorded.....	21,315 .....	Reported to local boards.
Number of post card returns of mortality received and recorded.....	2,340 .....	8,000 (in twelve months).
Number of Annual Reports received.....	86 .....	700.
Force employed at central office.....	1 Secretary ; 2 Clerks ; 1 Messenger.	1 Secretary ; 2 Clerks ; 1 Messenger.
Force employed for food and drugs analysis.....	2 .....	None.
Chemists and assistants.....	1 .....	"
Inspectors .....	3 .....	"
Force employed at laboratory .....	Pathologists, 1 ....., Assistants, 3 .....	Bacteriologist. 1. None.
Applications for advice from cities and towns relating to water supply.....	39.....	11.
Sewerage and drainage.....	19.....	15.
Pollution of streams.....	7.....	3.
Samples of water examined.....	2,200 .....	96.
Sewage effluents examined.....	199.....	
Samples of water and sewage from board's experimental station.....	2,929 .....	None.
Samples of sand examined mechanically for experimental station .....	326 .....	None.
Sand samples from other filtering works in State.....	6,500.....	None.
Force employed at central experimental station.....	1 Chief Engineer..... 3 Assistant Engineers... 2 Stenographers and Clerks .....	None (no station). None     " None.
At Massachusetts Institute of Technology .....	5 Chemists ....., 1 Chief Biologist..... 1 Ass't     " .....	None (no station). None. None.
At Lawrence filtering experimental station.....	3 Chemists ....., 2 Bacteriologists..... 4 Assistants and laborers.....	None (no station). None. None.
Total expenditures for general work of Board .....	\$15,800.00.	\$9,000 00 \$2,000.00.
For carrying out laboratory experimental work, analysis	\$30,000.00.	
Manufacture of Anti-toxines, tuberculin, etc.....		None.
Act re food and drug inspection.....	\$11,500.00 .....	None.

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With regard to the several works carried on, the following recommendations are made by the board of health of Massachusetts to the Legislature in the beginning of 1897.

"The Board recommends the continuance of its investigations now being carried out as authorized by the Act of 1888. For the purpose of and to make the necessary investigations in order to advise cities, towns, corporations and individuals in regard to the best methods for assuring the purity of intended or existing water supplies and the best method of disposing of sewage, the Board estimates that the sum of \$30,000 will be required."

That the practical work in two such areas must vary very notably in its needs is apparent. While the work in Massachusetts, as illustrated from its large urban areas of population, demands much technical knowledge of a medical, biological, and engineering character, and while much of such, could with the greatest advantage be employed in Ontario, it is apparent that the large rural areas of Ontario demand especially a definite number of medical officers of health trained in biological and practical sanitary work, under whose supervision, contagious diseases in both men and animals can be dealt with promptly, the abatement of nuisances associated with cheese factories and creameries, abated in a routine manner by provisions for proper disposal of the refuse from such places and the piggeries associated with such, and the supervision of the construction, the ventilation and water supplies of the public schools, and the investigation of local insanitary conditions on farm premises and in the smaller villages, notably as regards the water supplies, so often fertile sources of typhoid and similar filth diseases.

While these differences in needs are apparent, we cannot, however, be blind to certain real differences as regards scientific investigations of sanitary problems, in which certainly Ontario does not show to advantage. There has undoubtedly been a tendency in Ontario, similar to that in the newer and less developed Western states, to devote the energies of the teaching staff in our several universities and colleges to the routine teaching of knowledge, doubtless valuable enough in itself, but since it is second-hand, failing to create a desire or give opportunities for investigation in the field of research. More than this, however, though we have laboratories in some departments in which much might be done, were time and workers supplied, yet in many directions, these are inadequate for the ends to be attained. While to the ordinary observer, laboratories of research in sanitary science may not seem to have a very direct economic value, nevertheless, the needs observed both in England and elsewhere, in the matter of laboratories of scientific research, are not limited to such alone, since research work in Germany and France has long since been shown to be productive of the most remarkable economic results. Moreover, what has been done in the seats of learning, whether in England or the United States, has been almost wholly due to private benefactions, and not to state aid. As regards laboratories of sanitary research in the latter country, apart from the experiment stations and laboratories of Massachusetts, and the working laboratories attached to the city health departments of New York and Brooklyn, the Laboratory of Hygiene of the University of Pennsylvania, established by private benefactions, is almost the only place where systematic sanitary investigations are carried on in that country and in the latter, the energies of the staff are devoted rather to teaching than to practical investigations. The following statement of the scope of the work is given by, H. C. Abbott, M.D., Director of the Laboratory. "It comprises the teaching of undergraduate medical students, and of graduate medical students, and the direction of advanced work by individuals who have the training necessary to the proper performance of such work. It is interesting to note that the workers in our laboratory have been almost exclusively in the line of

bacteriology. We have had practically no demand whatever, for the teaching of hygiene. The reason for this, I believe, is that there is no market for men trained in practical hygiene—no opportunity for them to make their living through the possession of such expert knowledge. I am just now engaged in endeavoring to broaden the scope of our work by asking the co-operation of the state and local boards of health, with the hope of ultimately organizing in different parts of the State, small laboratories which would aid the state and local boards in their work." The direction which it is apparent, laboratory research even where now begun, tends, is very neatly set forth in the remarks of Dr. Abbott, and the reasons for it accurately indicated. The question is, not whether sanitary research, as into ventilation and heating, drainage and sewerage problems, the mechanical and biological qualities of soils, of ground air, of the climate of altitudes, of malarial areas, the air contents and qualities of factories in different industries, of cellar air and house and hospital air, admits of almost illimitable development, but whether the people are advanced sufficiently to realize the vital influences of such conditions upon every citizen.

To day the engineering schools do a little of hygiene, in teaching the mechanics of sewerage and construction of water works, but little or nothing of its biological factors; the architects are taught draughting and many other important problems connected with their art, but very little indeed of the physical qualities and conditions under which the ventilation of buildings is to be carried out. In all these fields then, it is apparent that the present methods have as their object and aim to give to a physician a modicum of specific bacteriological knowledge, that he may appropriately be labelled *a medical officer of health*; to the mechanical engineer and surveyor enough knowledge to test sewer pipes, and have them truly laid, that he may be called *a sanitary engineer*; and to the architect, that he may see that the apparatus of some mechanical inventor, be placed in the house walls in such a position that it will at any rate, draw some fresh air into the rooms. Surely however, there is a need and a practical possibility of having these several growing and most necessary branches of scientific work, so brought together, that the training of men for dealing broadly with the manifold sanitary problems of a municipal area, rural or urban, may be made possible; and that they be partakers in and witnesses of such scientific investigations into sanitary problems that they will not be claiming positions for which they have not been trained, either by virtue of their bacteriological expertness alone or their ability to lay water pipes or sewers.

This, however, can only be done by establishing research schools, and at the same time establishing state and municipal official positions, in which thoroughly trained officers may devote as members of a working profession, all their energies to the improvement of the local health conditions of life, and become an advanced guard amongst the workers in all fields of social progress and reform.

As stated by Mr. Addison Brown of New York, in dealing with "Laboratories of Research." "The vital relation between the advancement of knowledge and the welfare of man furnishes an al! sufficient reason for the continuous and never-ending prosecution of original research. As there is no limit to the advance of knowledge, so there can be none to the benefactions it may confer on mankind."

That the value of such work is realized most fully in Germany by the government, it may be stated that there are there, 21 universities maintained by government, which in the field of natural science or biology alone, maintain five district departments, viz:—those of physiology, botany, anatomy, pathology and zoology, having at the head of each, a professor and two paid assistants, or 200 workers

devoting themselves in Germany, to biological research alone. England has less than a quarter this number, while more than 1,000 workers in the various sciences in the different institutions in Germany, are appointed and paid by the government. The results of this seemingly extravagant endowment of scientific research, has in Germany, and will yet more rapidly, entered the field of economics and commerce, and, greater than all subventions and bonuses together, will go to determine commercial supremacy over nations, who lag in similar work.

Dr. Krause speaks of the Elberfeld tar products manufactory, "The Tarbenfabriken," where sixty trained scientists are employed, there being twenty-six in the chemical department alone, while in the "Badische Anilin and Soda-fabrik" works, seventy-eight chemists, (fifty-eight Ph. Ds.) are constantly employed in research work.

Of these classes of goods, some \$20,000,000 are annually exported from Germany, or nine-tenths of all manufactured in the world.

As Prof. Henry E. Armstrong, London, England, has recently said, "Chemistry is now a German science, and twenty years will make it still more so. In Germany, the victory has been wholly gained by the universities, no longer as in England, dominated by the influence of the monkish cell."

In such research work, looked at purely in its relations to public health work, we may properly enquire what is being, and what ought to be, done in the Province of Ontario. As regards public health organizations, we may say that the Province of Ontario, has now for fifteen years, had its department of public health, and that in 1890, it began in the appointment of a trained bacteriologist, and the equipment of a small laboratory for the development of such work, as the examination of the waters proposed as sources of public supply, of suspected well waters, and the examination of diseased tissues. The more accurate work of the board has since then been gradually extended. Within more recent years, the work has increased very greatly in the examination of membrane in suspected cases of diphtheria, and of sputum in cases of tuberculosis, and the blood in suspected cases of typhoid fever. When it is realized, however, that there is but one laboratory officer endeavoring to do this routine work for almost all the 800 municipalities in a province of 2,250,000, the fruitlessness of the attempt to deal even with the routine work will be apparent when it is stated that from one municipality alone, of 10,000 population, more than 300 diphtheria samples of membrane were examined within three months. Experimental work has been carried on in connection with several outbreaks of rabies in dogs where several persons had been bitten; while, as will be seen from the tabulated statement already given, the work done is being widened in many ways. It will, therefore, appear quite impossible for the laboratory of the Provincial Board of Health to do more than touch the fringe of the routine practical work in diphtheria, tuberculosis and typhoid, when as estimated from the cases of the several diseases reported for the year 1897 by local boards of health, there were: Of diphtheria some 10,000 cases alone, of typhoid 1,432 cases, and of tuberculosis 5,000 cases or more.

The problem therefore arises, in what direction must we move in order that the local routine work may be properly done, and that the Provincial laboratory may be left free to pursue work in the experimental field, and establish means whereby rabies may be dealt with, whereby vaccine, prepared along the lines of modern aseptic methods, may be kept on hand, and whereby problems now being studied in other countries and states having relation to the vital and economic well-being of our people in matters of health, will find Ontario doing her part in this as in other work.

As has been referred to by Dr. Abbott, in the extract from his letter already quoted regarding Pennsylvania, the time seems opportune for a new departure in the work in Ontario. Hitherto it has been a simple Provincial laboratory, almost with a single worker. A number of the larger cities are already seeing the work begun by young and enthusiastic physicians taking up the work of examination of diseased tissues, sputum and diphtheria membrane. What is needed is organization from the Provincial Board of Health centre, outward through the local medical profession, and from thence to the county medical associations, cheese-makers' and other associations, and from these to the county councils. The needs have become apparent to all who are engaged in scientific, professional or business operations in every one of these departments. How shall we have the work focused, and make a central laboratory a source of real help to each and every class is the problem?

It appears to your secretary that since your Board has, during the past fifteen years, led in the scientific work which has had for its object the application of scientific discoveries in sanitary matters, to the improvement of the public health, that it should devote once again its energies to the prosecution of so desirable and congenial a work as cultivating a general interest locally in the counties of the Province, looking to the establishment of local laboratories for scientific routine work, leaving the central laboratory of the Provincial Board to carry on special investigations as time and assistance may permit. A sanitary institute must be the natural outcome of the public needs, which are evolving a truly public health service and the study of household economics as a recognized branch of political and social economy.

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## CHAPTER III.

### LABORATORY RESULTS IN SERUM DIAGNOSIS OF DIPHTHERIA.\*

The reports of local boards and the correspondence of the past year bring in accounts of the increasing application of the bacteriological method to the diagnosis and control of diphtheria. It is now recognized as one of the functions of a health department, whether municipal or provincial, to carry out work of this character, and as boards of health acquire an increasing sense of their duties to the public, and authorities provide the means, the work of the bacteriologist in diphtheria increases.

Ontario has not been behind other states in this work, and in so far as her means will permit, has increased during the past year the amount of work done of this character. Local authorities are beginning more and more to appreciate and take advantage of the means afforded by the Provincial Board of Health, and this year has witnessed this distinct advance that rural municipalities have decided to refer all diphtheria or suspected diphtheria cases to the provincial laboratory for diagnosis by swab, and to depend upon reports from the laboratory for the duration of quarantine of suspected cases. On account of this marked increase in work which has occurred this year, it may be well to consider some of the questions in connection with it, upon which the experience of the past year has a bearing. The method of sending specimens to the Laboratory has undergone a change which diminishes considerably the expense to the municipality or the individual. Formerly it was necessary to send specimens by express, as the Post Office regulations forbade the transportation of such specimens through the mails. In response to representations from the provincial and local boards of health, however, the Department at Ottawa has issued instructions to permit the passage of such specimens through the mails as fifth-class matter, provided they are packed according to instructions sent out by the Department. Unfortunately many medical men are exceedingly careless in the packing of such specimens, and the experience of the laboratory has been, that a certain percentage of the tubes containing swabs, are smashed in transit on account of bad packing. This, with a little care, would not occur. The form of the swab has a certain influence upon the result of the examination. In some instances these have been sent as irregular masses of cotton of large size, in which it was impossible to determine by inspection, which surface has been exposed to the exudate. In other cases, the swab has been well made and firm, but of such a large size that it was impossible to get it into the serum tube for inoculation, and portions of the infected surface had to be picked off with sterile forceps and rubbed on the culture medium. Again, the reverse condition has sometimes occurred, in which the swab has been so small that it has seemed doubtful if it could have been properly exposed to the throat surface, and where negative results have been obtained, one was in grave doubt as to their value. The experience of the laboratory has been that the most successful swabs and those which gave the best results were of medium size, firmly made and supported upon wire or a splinter of wood. The wood has seemed the most practical, as it is easier to make a firm swab and there is less danger of the swab slipping off.

\* By J. J. Mackenzie, B.A., Bacteriologist to the Provincial Board of Health.

With a swab well made, it is not necessary to use any force in taking the specimen. The diphtheria bacilli are always most numerous upon the exposed surface of the exudate, and all that is necessary in order to obtain them upon the swab is to simply touch the surface. Sufficient force to abrade the surface of the mucous membrane and cause bleeding, as has happened in some instances is not necessary.

A frequent cause of unsatisfactory results has been the culture remaining sterile in spite of careful inoculation. This may be due to some fault in the culture medium or in the swab. That this is not due to the first cause has been repeatedly proven by using the sterile culture tubes for re-inoculation with living diphtheria cultures when a luxuriant growth was obtained. The fault was therefore evidently in the swab, and two causes may exist to account for it. First the throat may have been treated with a strong disinfectant too short a time before the swab was rubbed on the mucous membrane. The result would be in such a case that although bacteria were picked up by the swab, they were either all dead or were subsequently killed by the disinfectant taken up at the same time. A second cause is the use of a fluid disinfectant to sterilize the bottle or tube in which the swab is sent to the laboratory. In this case, although living bacteria were introduced on the swab, the remains of the disinfectant in the bottle have destroyed them before the culture was made and the tube remained sterile. In several instances the use of alcohol to clean the bottle has been found to cause this. The only way in which to disinfect the bottle proper, is by dry heat sterilization, and swabs and tubes may be readily disinfected by placing them in the oven of an ordinary stove and allowing them to remain until just the faintest browning of the cotton takes place. The experience of the laboratory has been to lead us to prefer the swab to a tube inoculated by the medical man himself. The latter method does not really in any way shorten the time necessary for reporting, and it affects the results in that sometimes the tubes must remain at a temperature under 20° C. for twenty-four hours, and the diphtheria bacilli are overgrown by ordinary saprophytes. A large bacillus of the group of *B. subtilis* has proved especially annoying in these cases as it liquefies the surface of the blood serum. If the faults mentioned above were carefully avoided by medical men, the results would certainly be more satisfactory and certain, and more confidence would be felt in reporting results.

The work of examining swabs from suspected diphtheria cases has, as mentioned above, extended considerably during the past year, and this has been due partly to new municipalities taking advantage of the facilities, and partly by more systematic work in certain municipalities. Of the latter may be mentioned Berlin, Dunnville and Pleton, from which places results were sent from all suspected cases, and quarantine was not raised in any case until the throat was pronounced clear as a result of a bacteriological examination of swabs sent to the laboratory.

The Berlin results are the most numerous and consequently the most interesting. Up to the end of the year, 382 swabs were examined from Berlin, including new cases and convalescents, and with regard to the first 160 of them, we have complete returns.

The number of suspected cases of diphtheria examined, was sixty-one; of these thirty-three proved to be diphtheria, twenty-five were not, and three were doubtful. Two cases showed no membrane.

Ninety-six swabs from convalescent cases were examined, and the results were as follows:—

Declared free from infection on first examination .....	37
" still infected          "          " ..... 27	
" free from infection on second          " ..... 14 (2 doubtful)	
" still infected          "          " ..... 8	
" free from infection on third          " ..... 3	
" still infected on third          " ..... 4	
" free from infection on fourth          " ..... 1	
" still infected on fourth          " ..... 1	
" free from infection on fifth          " ..... 1	

Of those, declared free from infection the day after the disappearance of membrane when the swab was taken, there was as follows:—

3rd day..... 1	10th day ..... 4
4th   " ..... 4	12th   " ..... 1
5th   " ..... 2	14th   " ..... 1
6th   " ..... 9	18th   " ..... 1
7th   " ..... 7	21st   " ..... 1
8th   " ..... 12	24th   " ..... 1
9th   " ..... 4	25th   " ..... 2

An interesting point in regard to these figures, is the comparatively short time which elapsed between the disappearance of the membrane and the disappearance of the bacillus from the throat. In the majority of cases it had disappeared before the ninth day. This is a shorter time than usually occurs under ordinary treatment, and the explanation seems to be the thorough way in which D. anti-toxin was used in the Berlin epidemic. It is the general experience that with the aid of D. anti-toxin, the bacilli disappear more rapidly from the throat, and when we consider the nature of the treatment, we can easily understand how this may be. The researches of Klein and others have shown that the diphtheria anti-toxin serum contains not only the anti-toxin but also a specific bactericidal substance. The amount of the bactericidal substance varies in the different forms of serum, and depends upon the method of manufacture, being greater where the immunization of the horse is carried out with a mixture of toxins and bacilli. But it is present even when the pure toxin is used. Ehrlich and Behring have shown that anti-toxin introduced into the system is gradually excreted in the secretions, and a certain percentage of it must appear in the saliva. The final disappearance of the diphtheria bacillus from the pharynx of a diphtheria convalescent, even when anti-toxin is not used, must be largely due to unfavorable conditions, most probably the passage of a bactericidal substance from the blood to the saliva, and this will be necessarily increased when anti-toxic serum is used in addition, and would explain the more rapid disappearance of the bacillus in such cases.

## CHAPTER IV.

### AIR-PURITY AS A MEASURE OF HEALTH.

In choosing the subject of this chapter one would seem almost to owe an apology to those of the public who have done your Board the honor to read its report in past years, for, as has been indicated in the introductory chapter, some phase of this problem has time and again been dealt with in annual reports. If the earlier reports of this Board be consulted there will be found articles largely founded on the statistical studies made by the earlier British sanitarians on population density and the mortality rates having relation thereto. Never have been set forth more conclusive facts than those contained in the classical English of Sir John Simon or the exact technical language of Sir Douglas Galton, in dealing with these problems to which they lent their splendid talents, and upon which have depended the notable sanitary achievements of the last forty years in England, as shown by the steadily falling death-rate from preventible diseases.

Two reasons may be given for again taking up the parable of "Pure Air," one of which is that as apostles of hygiene our personal experience and observation teach us that missionary work is still required so far as the general public is concerned, and another that there has appeared a tendency here and there in the laboratory hygienist to measure truth by the millimetre scale of his microscope, forgetful of the fact that if we would see other worlds we require still to use a telescope of the amplest dimensions.

But as working health officers we yet further feel that the solution of the great unsolved problem before us—the limitation of the ravages of tuberculosis—demands first that by every means within our power we shall point out that density of population, due to the increasing urbanization of the people of progressive communities, or it may be the density within a single house in a rural community, is the primary condition upon which tuberculosis depends for its spread; while on the other hand it must become a matter of every-day knowledge and experience amongst the common people that de-urbanization and life in the open air are the *alpha* and *omega* both of its prevention and cure. That I have singled out tuberculosis in no sense lessens the necessity for teaching that the same knowledge should exist regarding the acute contagious diseases; but it would seem that our people have become very generally aroused to the conditions of infection with regard to such.

As to density of population being a measurer of health I need not do more than give single illustrations from several sources. Dr. John Simon in his City of London Reports on the Dwellings of the Poor, wrote in 1850, "I described to you the miserable class of dwellings alluded to, courts and alleys with low, dark filthy tenements, hemmed in on all sides by higher buildings, having no possibility of any current of air, and (worst of all) sometimes so constructed, back to back, as to forbid the advantages of double windows or back doors and thus to render the house as perfect a *cul-de-sac* out of the court as the court is a *cul-de-sac* out of the next thoroughfare. "I affirmed that this could never be otherwise than a cause of sickness and mortality to those whose necessities allow them such residence, and assured you of the incontrovertible fact that subsistence in closed courts is an unhealthy and short-lived subsistence in comparison with that of dwellers in open streets. In habitations of this kind the death-rate would of necessity be high even if the population were distributed thinly in the

district. A single pair of persons with their children having such a court for their sole occupancy, would hardly be otherwise than unhealthy, the infants would die teething or would live pallid and scrofulous, or a parent would die prematurely, the father perhaps with typhus, the mother with puerperal fever. Judge then, gentlemen, how the mortality of such courts must swell the aggregate death-rate for the city, when I tell you that their population is in many instances so excessive as in itself and by its mere density to breed disease."

Another, and statistically yet more important illustration is taken from the New York City Board of Health Report for 1896. The facts summarized concerning Dr. Guerhard's investigation of the Fourth Ward in relation to tuberculosis are as follows:—

A three years' census of Ward IV. for 1894, 1895, 1896 gave the following results:

Total houses in ward .....	660
Average population to house (total population 48,323)....	27.6
Total houses infected with tuberculosis .....	37.3
Total cases of tuberculosis.....	541
Percentage of cases to houses .....	81%
Cases per 1,000 population in 1894 .....	9.4
"            "            1895 .....	8.7
"            "            1896 .....	11.2

Or from the records of deaths for eleven years in three old-settled Ontario counties, given in detail in the Annual Report of Board, 1892:—

Counties.	Total No. of deaths.	Total names,	Total names repeated.	Percentage of deaths to names repeated.	Average times such name is repeated.	Percentage to total deaths from all causes during 11 years.
						Per cent.
Welland .....	404	285	71	25	2.67	10.21
Prince Edward .....	330	198	86	43	2.53	11.3
Lincoln .....	450	330	195	43	2.6	9.9

Another illustration may be taken from a statistical study guide in 1897 of the "Distribution of Tuberculous Diseases in Glasgow," by A. K. Chalmers, M.D., medical officer of health. The comparison is made between the periods inclusive 1881-90 and 1890-95. It was shown that while the general death-rate fell but three per cent. the death-rates from phthisis fell fourteen per cent. in the twenty-four statistical divisions in the city. With local variations owing to changing business conditions affecting the population, the following general statements are made, based upon the information:

1. The room-density of the whole city fell from 2.040 in 1881 to 2.033 in 1891 (or a decrease of seven persons per 1,000 rooms), and its phthisis rate from 268 to 230 per 100,000 living.

2. All districts, save one, having a phthisis death-rate above the mean, have a room-density also above the mean. St. Enoch Square district is the only exception to this, and the distributing influences there present have been stated.

3. In all these districts, save St. Andrew's Square, the room-density was greater in 1881 than in 1891.

4. Eleven districts have a phthisis death-rate below the mean; five of them have a room-density in excess of the mean, which is tending toward increase in three of them.

5. These exceptions are sufficiently large to show that the relationship between room-density and phthisis is not a simple one, and that excessive density is not at once responded to by an increased phthisis rate. But in nine districts where the room-density increased between 1881 and 1891 the phthisis death-rate fell 13.5 per cent., whereas in fourteen districts where the room-density was reduced, the phthisis rate fell sixteen per cent.

The facts set forth above form a statistical standpoint upon which the effects of room density are well illustrated in the scientific experiments of Flügge in an article in *Zeitschrift für Hygiene*. His conclusions are :

1. That owing to technical errors the older observations upon the rate of air movement necessary for the lifting of bacterial parasites into the air gave too high a figure as a unit. Flügge's observations place it at about four metres per second.

2. That once particles have been thrown into the air they remain floating for hours (six hours), and may be carried from one part of a room to another by currents of very slight intensity, less than two millimetres per second.

3. That bacteria-holding droplets of fluid are always thrown into the air by a fit of coughing, by sneezing or by loud talking, and these droplets are so small that they may be found floating in the air for at least five hours and are carried about by currents of exceedingly low intensity.

4. That slides supported in front of coughing consumptives are frequently found to be covered with tubercle bacilli either isolated or in small groups, and that they must have been associated with the small particles which Flügge found would float for such a time in the air.

5. That particles may be thrown a distance of thirty feet by an ordinary fit of coughing.

6. That experiments with the dust of dried sputum on animals have practically always shown that it is not possible to produce inhalation tuberculosis in that way.

7. That in those cows where inhalation infection has been successful, sprayed moist sputum has always been used.

He concludes that in diphtheria, scarlet fever, consumption, influenza, etc., there is more danger from the infecting agent thrown into the air by the act of coughing than from dust derived from the same material.

It will be of further interest, however, to approach yet nearer our subject, and *en résumé* indicate some of the results of experimentation as to the causes upon which these facts depend.

In Dr. Paul Regnard's recent work, "La Cure d'Altitude," are summarized in chapter I. the chief points relating to the chemical constituents of the air, and in chapter II. the micro-organisms in air are dealt with. He refers to the clouds of dust which are disseminated in the air by the wind, and indicates their almost innumerable constituent particles. Very many of these, as he states, are very minute, dry and unalterable. But there is yet more, one finds dry and distorted the germs of those micro-organisms which produce fermentations and diseases.

Bacilli, cocci, sarcinae, spirilla abound in the air which each moment penetrates into the deepest bronchioles of the lungs. He further gives the experiments of Pasteur, and notably those of Miquel of Montsouris, on the enumeration of the germs in the air, and who at the same time by culture media of various sorts, determine those which are living, as well as their species. Of these forms, Miquel states there are at Montsouris (Paris) fifteen moulds per litre, and that we inspire 150,000 of them daily into the bronchioles from what is as compared with house air, relatively pure air. There would be a million in the centre of Paris, or according to the season :

Winter.....	6.6	per litre of air.
Spring .....	16.7	" "
Summer .....	22.8	" "
Autumn .....	10.8	" "

Few however, of the moulds are injurious to us. It is different however for the bacteria of which so large a number are pathogenic. The number of these per litre is :

Winter.....	634	per litre.
Spring .....	433	" "
Summer.....	825	" "
Autumn.....	1,083	" "

In the centre of Paris they become extremely abundant; they are equally increased within, as compared with the outside of houses.

	Bacteria per centimetre.
Air over the Atlantic Ocean at 100 kilomm. from shore.....	0.6
At Paris, on top of Pantheon.....	200
" at Montsouris Observatory.....	480
" in Rue de Rivoli.....	3,480
" in a new house.....	4,500
" in sewers.....	6,000
" in an old house .....	36 000
" in La Pitié (hospital). . . . .	79,000

Thus a patient in *La Pitié* takes into his lungs 790,000 bacteria daily, or if the multiplication were made, he would in a month's residence inhale 23,700,000 bacteria. This is how we explain the contagion of so many maladies; this is how we come to understand the incessant bronchial secretion of certain persons, since the bacteria adherent in the mucus are constantly being cast out in the expectorations. When such organisms are not destroyed they are deposited on furniture, hangings, in the cracks of floors, while a gramme of such dust contains, as Miquel states, of micro-organisms :—

At Montsouris (Paris).....	750,000
Rue de Rennes (Paris).....	1,300,000
Rue Monge.....	2,100,000

While doubtless many of such are harmless, yet, as M. Regnard says, many are propagators of tuberculosis, of cholera, of typhoid fever, of anthrax, of puerperal infection, of erysipelas, of pneumonia, etc.

Such is a summary of facts regarding the microbic impurities of the air of inhabited areas, wholly in accord with the statistical facts already given; but it is of equal interest and importance to point out, as Regnard and others before him have done, that the air of mountains and other largely uninhabited areas is *poor in microbes*. Experiments begun by Pasteur in his early studies on spontaneous generation, which have been repeated, varied and refined by Giacosa, Freudenberg, Miquel, and many others in recent years, as those carried on in the high mountains of the Alps, have shown culture fluids to have remained sterile in many instances, or to have shown only a few moulds. They increase so soon as the neighborhood of habitations is reached.

To demonstrate, however, that the atmosphere purifies itself with great rapidity when we ascend above centres infested with microbes, Miquel has shown that on the tower of the Pantheon in Paris, at 100 metres above the street, the air is twenty times purer than at the ground, and progressively toward absolute purity with greater heights. This fact was neatly proven by M. Christiani of Geneva, who experimented by taking air-samples in a balloon, 3,000 metres above the city. Even at 1,000 metres he found that the air contained a very few germs; at the heights comparable to many health stations in the mountains he found the air to have an absolute purity.

In such regions everywhere, tuberculosis, unless when introduced, is practically unknown among the inhabitants, as shown by Dr. Baykie in the Himalayas, Guillet in the Cordilleras, Antonio d'Abbadie for the mountains of Abyssinia, Schlagintveil for the mountains of Thibet, and different observers on the foot-hills of the Rocky Mountains, and Jourdanet for the city of Mexico.

Such immunity of the natives, Regnarc concludes, cannot be due to the surroundings of the native inhabitants, as often they are most insanitary. He further insists that at Davos, in the Engadine Alps, with its great crowd of consumptives spitting everywhere, to a degree of contamination beyond that of our cities, phthisis is not here contagious, "*très peu d'habitants ont été pris et presque tous ont guéri.*" That this statement is an extreme one, would seem proved by such evidence as that of Dr. Guitérás, of Zacatecas, Mexico, and different observers in the health resorts of the Rocky Mountains, where they distinctively affirm that the element of house infection does exist as a positive danger to otherwise healthy inhabitants. The real cause of such danger may be briefly summed up in the conclusions arrived at by Flugge, based on an extended series of experiments carried on by him, as already referred to and published. In view, however, of the abundant evidence provided from different sources by many writers, Regnard has without doubt authority for his statement that mountaineers seldom become affected with tuberculosis, due he affirms to the following several principal causes:

1st. The rarity of the infective agent (*B. Tuberculosis*) due according to Freudenberg, to the degeneration of the bacilli by its life in cold atmospheres during many months. This is proved by exposing a culture tube infected with *B. tuberculosis* to cold, at least 6° Fahr. for six months, thereafter infecting guinea-pigs, when they have been found to have lost their virulence, and do not produce the disease.

2nd. This is associated with another related fact that in every country, even where not elevated, where the soil is covered for a long time with snow, tuberculosis is comparatively rare.

3rd. That seldom are exposed persons, rich in blood constituents, inoculated with the disease, since the invasion of the bacillus is generally preceded by anaemia, paleness, loss of appetite and so on even in residents of the plain

country, and further that the resident of the mountain tends by experimental evidence to a condition of blood rich in red corpuscles, above even the normal in a dweller at low levels.

4th. That while a cold and fresh air prevails in the mountains even in the summer, there is the additional fact that in winter the mountain atmosphere is fresh and dry, with sunshine of great intensity.

During comparatively recent years the blood-making (haematopoietic) effects of mountain climates have been greatly studied experimentally, and we have to thank Regnard for having recently given us in his splendid work, the results of his own work and that of other students on the physiology of the "Climate d'altitude."

The one dominant fact, shown by all their experiments is, that such a climate tends directly through the effects of diminished atmospheric pressure to the rapid production of red-blood corpuscles, due as these experimenters have shown to the physiological demands of the system for an amount of oxygen, (for the oxygenation of the blood) greater than the normal number of blood-corpuscles at lower altitudes can supply. Paul Bert's and Regnard's laboratory experiments on animals, maintained under sanitary conditions for weeks in the Paris laboratory under a constantly decreased atmospheric pressure, as for instance, that equivalent to 3,000 metres of height, have proved a corresponding increase in the red-blood corpuscles in experimental animals.

The theoretical reason for the hypercythemia, may be briefly summarized from Regnard. The ascent of persons from the plain into the mountains is associated with the following characteristic symptoms for a number of days :

1st. Sensations of heat on arrival at mountain heights, with flushed face, turgid lips and lightly injected conjunctivae and itchiness of skin.

2nd. Sleeplessness, in those who have ascended the mountain rapidly by train, and especially in the anaemic and neurasthenic, generally disappearing however, after a few nights.

3rd. Palpitation and breathlessness; and especially at night when in bed, headache and vertigo.

4th. The appetite increases almost invariably from the day of arrival.

5th. There is in most a sensation of *bien être*; people become bright and gay, more enterprising, their ideas enlarge, and immediately feel like undertaking exercise often beyond their strength.

6th. Hysteria may easily happen in nervous women.

These symptoms disappear as follows :

1st. At the end of a week or so the skin still remains bronzed, and the sensations of discomfort disappear. The skin becomes rough and scaly and the hair dry. Nasal and pharyngeal catarrhs rapidly improve.

2nd. Nervous sensations disappear, and sleep returns.

3rd. The dyspnoea and palpitation disappear, the breathing becomes normal, exercise may be taken without pain, and without fatigue.

To these several symptoms when in excess, most continental writers have given the term *mal de montagne* or mountain sickness, and while varying for different persons, it increases with increasing heights; but for most it is severe at 10,000 to 12,000 feet, although stated to vary notably in different mountain regions. Such may result in vomiting, colic and diarrhoea, perspirations, buzzing in the ears, syncope and insensibility.

Various mechanical, chemical and electrical theories have been advanced as to the cause of these symptoms ; but as Jourdanet first thought and as has since been proved, it is due to a lessened oxygenation of the blood, due to a diminution of atmospheric pressure. Experimentally it is readily shown that the percentage of both carbonic acid and oxygen disappear under lessened pressure as first definitely proved experimentally by Paul Bert. Thus if at 760 millimetres (30 inches bar.) the blood absorbed 20 c.c. of oxygen ; at 370 it only absorbs 16.5 c.c. ; at 200, 13 c.c. ; at 30, 7.4 c.c. The lessened capacity of blood for the absorption of oxygen is much the same, whether in the blood drawn or in the blood of the living animal.

Thus as Regnard remarks, "There is then anoxyaemia in him who ascends the mountain, and thus anoxyaemia is further the cause of the *mal de montagne*. A further experimental and observed fact is added, that exercise, by using up oxygen in the tissues, produces the sickness sooner than when the person or animal is at rest.

Since, however, this sickness passes away if the person continues to reside in the mountains, the story of the cure is, that gradually the physical system compensates for the lessened capacity of the blood for absorbing oxygen by an increase of the red-blood corpuscles. Paul Bert calls it the *theory of hyperhemoglobinæmia*. It consists in supposing that the hemoglobin has augmented in quantity in the blood, in such a manner that persons at such heights have in their blood the same quantity of oxygen as at lower levels, and that thus the blood defies the lack of oxygen (anoxyaemia).

The actual results of the experiments of Egger of Bâle, in 1891, who on account of health lived for a time at Arosa in the Alps, may be quoted. He experimented with persons coming directly from the lower levels. He examined their blood the day after their arrival, and subsequently at the 15th day, temperature, etc. He examined 27 persons, (21 men and six women) of which two were neurasthenics, two chlorotics, 14 tubercularized, nine in good health. In all he noted a considerable increase in the red-blood corpuscles. Thus in 15.5 days, the number of corpuscles had passed from 5,400,000 to 6,290,000 in a cubic millimetre of blood. In the well the increase was 702,000 ; in the tubercularized, 982,000. He then asked himself as to the cause of the increase ? They had not altered their manner of life. In the same manner, rabbits from Bâle were sent to Arosa, and Egger found that after three weeks the corpuscles had increased from 6,770,000 to 7,770,000, or 17.4 per cent. He further found that the number of corpuscles in healthy poor persons living at Arosa, was notably greater than in persons living at low altitudes. Thus this augmentation is permanent.

Egger found that his blood which at Arosa rose to 7,300,000, fell on his return to Bâle to 5,600,000 after fourteen days' residence, and in the rabbits from 8,400,000 to 5,800,000. Mercier and Viault similarly found that on descending to the plain, the corpuscles decreased again to their normal, and in the instance of Mercier, they increased within a week to their previous number. As might be expected, says Regnard, this augmentation of the respiratory elements of the blood, does not take place without its making itself felt in every organic function.

Respiration, circulation and the general nutrition are actually influenced by the sudden activity in haematopoiesis. The respirations are increased for a week or more, since the increase in blood-corpuscles has not yet resulted, and the

poverty of the air inspired in oxygen must still be compensated by a forced activity of the lungs. This activity lessens when the compensation in blood-corpuscles has been effected.

That the increased respirations result in a larger quantity of air traversing the lungs is graphically set forth by Veraguth (Diagram, page 173. Regnard's Cure d' altitude).

Similarly the pulsations of the heart are increased, as proved by Jaccoud and others, often to fifteen to twenty per minute. The question of intra-arterial tension, so closely associated with this, is described by Regnault, who denies the opinion, expressed generally *à priori*, by so many who have taught that hemorrhages ought naturally to follow the lessened external pressure. He states that hemorrhages in the mountains are quite exceptional, and the physicians of Davos affirm that nothing is more rare.

Egger explains the reason thus, viz.: that the lessened pressure on the surface of the body extends equally to the whole body so that no vessel can dilate.

In 1612 phthisical cases tabulated by different observers, 917, or 56%, had bad hemorrhages; 697, or 43%, passing hemorrhages. Of the latter 697, hemorrhages occurred before sojourn in mountains, in 572 before and after sojourn in mountains; in 90 only during sojourn in mountains, and in 33 only during sojourn in the mountains.

He further says that if altitudes, as 1,500-1,800 metres, tend to produce hemorrhages it ought to be shortly after or immediately on their arrival there. It happens, however, that this results but seldom.

As regards nutrition, the changes in the composition of the atmosphere and in the increased haemopoiesis should have an intimate relation to nutrition. Such is found to be the case. Thus from the experiments by many workers Regnard sums up the results, viz.: *That when the atmospheric pressure diminishes the oxygen supplied for organic combustion diminishes. Then the red corpuscles begin to increase and soon the normal condition of tissues is restored, and even passes the normal. It is certain, then, that in the mountains the appetite stimulated by the fresh air and walking, determines a more active nutrition and more intense combustion. Similarly, there is an excess in the moisture given off in the mountains by pulmonary respiration. Probably, however, there is a tendency to increase in weight by residence in the mountains.*

As regards the influences of mountain heights in the case of disease, Regnard from the many experimental observations I have referred to, naturally proves first a *hypercythaemia*, or an increase in the red blood corpuscles. This increase seems to remain to some extent even when the sick return to a lower level. The result of this increase in the richness of the blood in haemoglobin is to restore the tissues, to augment their oxidation and to cause a person to have more energy, while defective nutrition tends to an improvement. The energy of the digestive functions is restored. The defective respiration observed in many who are anaemic and have muscular weakness is notably enlarged in these regions of lessened pressure, and with the improvement there is the reasonable hope that it will maintain itself constant. In popular language we may say that the mountain climate hardens the individual, and hence he becomes more resistant to inoculation with the microbes of disease.

From this extended *resumé* of the physiological effects of high altitudes, and of the mode of nutrition and cure in disease dependent upon the hypercythaemia as due to residence in such regions, we have indicated not alone the conditions

making for health under such climatic influences, but we have illustrated what would appear to be the processes conducive to a high degree of health at all or any altitude. While the experimental evidence goes to show that the red blood corpuscles are a *sine qua non* to a condition of good health at high altitudes it does not mean that a necessarily better condition of health exists there than at the other altitudes with or in good sanitary surroundings. Regnard while indicating the physiological effects of high altitudes, likewise points out very clearly that mountain climates possess other qualities found in very many localities at low levels. Some of these conditions are :—

1st. Winter climates, with long periods during which the ground is covered with snow.

2nd. Equability of climate where, as in the forests of Canada, rapid changes of weather are notably ameliorated by these wooded areas, while high winds are of comparative infrequency.

3rd. Dryness of the atmosphere, as in the great prairies of the Canadian North-West, while the continuous cold with a moderate snow-fall is associated with a dry, highly ozonized atmosphere and with much sunshine.

4th. Wide plateaus even at low levels, as within the coast range of mountains of the Pacific coast of Canada, where, with a continuous cold weather in winter, there is but a light snow-fall, while a very small rain-fall makes up the balance of the year. Such conditions are necessarily associated with an intense sunshine all the year round, which makes a life practically in the open air continuously possible, and, therefore, the conditions for exercise and oxygenation of the blood present in the highest degree. There is in such a climate a notably less prevalence of high winds and of extreme temperature variations than at high altitudes, while the dryness of the air ensures as in the mountains a free peripheral blood circulation.

5th. The purity of the air dependent upon freedom from micro-organisms, as an essential quality of the atmosphere of such climates, exists in these latter cases both from the fact of a sparse population and the existence of the preceding conditions, all unfavorable to the multiplication of micro-organisms.

That the action of the solar rays plays a most important part in this climatic freedom from micro-organisms, whether on mountain or in the plain, has been well illustrated by many experiments, some of which are set forth in chapter II. in the Annual Report of your Board for 1895. Most notable are the experiments of the botanists, Marshall Ward, of London and Buchner, of Munich, wherein they showed that culture plates inoculated with bacteria were sterile when exposed to direct sunlight, but that the microbes grew well, when such were protected against the direct rays of the sun. Thus, in such climates as those of the Okanagan and Thompson valleys of British Columbia, we have not only the sunlight but the destructive influences of winter cold upon bacteria, in the same manner as such influences operate in the mountains and foot-hills, whether of the Alps or at such resorts of the Rockies as Calgary or Edmonton.

But further, Marshall Ward has shown that these germicidal effects of the sun's rays are due to the blue-violet and ultra-violet rays, the last in greatest intensity. How far the action of the sun's rays are conducive to an oxidation of the blood in the capillaries of the skin, is a most interesting problem in connection with our present study, and one very difficult of experimental proof, compared with that of the cell-life of plants. That it is notable, however, seems clear from the tanning and bronzing effects which intense insolation, whether in summer or winter, produces upon the skin of those much exposed to the sun's influence.

Such influences affecting the peripheral circulation are still further notably influenced, as are now known, by the ordinary measures of personal hygiene, as exercise, massage, bathing with frictioning of the skin, all which by increasing arterial tone are important adjuncts to the maintenance of health in the well and of improving it in the weak.

Without extending further the many illustrations which might be given of the all-important part played by the purity of the air in which any population lives, in determining its immunity from disease, and in temperate climates notably of freedom from phthisis, essentially a disease of mal-nutrition, it becomes of supreme interest for us to know that nature has supplied in most climates conditions which enable man to protect himself against the conditions, tending, as in house atmospheres, to the development of diseases of mal-nutrition, first amongst which is this contagious one of tuberculosis. We need not statistics to prove to us how different the every-day habits of life in southern climates may be, as compared with those of the cold north.

To say that in the cities of the tropics on all the continents tubercular diseases prevail, is but another way of saying that house density, as in India or China, exists in such cities to even a greater degree than in northern countries; to which may be added the general absence of progressive sanitation, and of habits and means of life tending to produce a strong physical constitution. Generally it might be said that give to our cold north, with its progressive people, the climate of the south, and we, with our sanitary methods and hygiene, might be almost expected to eradicate in a comparatively short time this scourge of the peoples. One thing, however, is manifest that, as has often been said before, not only must we limit the positive dangers of house infection from existing cases, but municipal and state control to a degree which has hitherto not existed must be exercised to limit or prevent those industrial conditions which inevitably tend to produce *candidates for consumption*. Equally with such measures must we deal with the problem of supplying to those who in every county may have become inoculated with tuberculosis the means whereby they may be saved to their families and country. A previous chapter has pointed out the field of work which in our county areas lies before the county medical officer of health, who, trained for a life-work, shall devote himself thereto, within an area, where he shall be able to see his work growing under his hand. Within such an area, where such an officer may well have his finger daily upon the pulse of a dozen of our smaller, progressive, well-to-do communities, I seem to see how, not only regulating the dwelling houses, the workshops and factories of his area, so that not a single man or family shall be able to say he is ignorant of what makes for his own and his family's health, but exercising so positive a sway that where the error of life, *whether of the man or his parents*, has resulted in the appearance of disease, such officer shall be able not only to point to the means of probable escape from the penalty, but shall be provided with such homes as Dr. Richardson spoke of when he dreamed his City of Hygeia, where, with lives regulated by the firm, strong yet kindly hand of the master of the science of medicine, those who may have taken as yet but a few steps along the pathway of physical declension, will feel the returning vigor,—*vis medicatrix naturae*,—supplied by the kindly mother, whose benisons are ever for those who can, and who would accept them. The century in which she has brought out from her treasure house so many marvellous gifts, would surely be untrue to those which have preceded, and to the purposes which through every one of them have now glimmered, or at other times shone as radiances from the thread of gold, linking them all with the first, as illustrating the hand of the Creator in His creation, did there not appear there-

with evils from the Pandora box of ills to teach that the *iter ad astra* can be only through human endeavors; that when He shall have "made the pile complete" this earth with its inhabitants shall have become fitted for that future to which "the whole creation moves," when physical and moral evils shall have been eradicated from the surface of the blossoming earth, and man, by his own self-conquest, shall sing paeans of victory over those ills which have been sent for his uplifting.

" Oh yet we trust that somehow good  
    " Will be the final good of ill,  
" To pangs of nature, sins of will,  
    " Defects of doubt, and taints of blood."  
  
" That nothing walks with aimless feet,  
    " That not one life shall be destroyed,  
" Or cast as rubbish to the void,  
    " When God hath made the pile complete."

P. H. BRYCE, M.A., M.D.,  
Secretary.

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## PART II.

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## I. CHAIRMAN'S ANNUAL ADDRESS.

BY J. D. MACDONALD, HAMILTON.

January 28th, 1898.

*To the Members of the Provincial Board of Health:*

GENTLEMEN,—It is, I trust, with thankfulness to a kind Providence, and with sentiments of pleasure and good fellowship, that we meet again at the beginning of a new year. We meet, I am sure, with the resolution to continue to give our best attention to the duties committed to us, duties, the importance of which cannot be estimated too highly. We reassemble, I am sure, resolved to make the benefits of good sanitation more and better known and appreciated throughout our land, to make it plain that the work of our Board is beneficent work, and that the more perfectly all parties acquaint themselves with the acknowledged principles of sanitation and reduce these principles to practice, the better it shall be for all. The Board may congratulate itself on having been, in some degree, serviceable in this direction already, and we may express a hope that as knowledge in our sphere of duty grows, and skill in the application of that knowledge becomes more perfect, this Board shall be found not to have been of those which lag behind in the fulfilling of all that is expected of it.

Our duties for the year just passed, it may be said, have not been onerous, and it is thought that for the favourable sanitary state of the country some credit may be taken by the Provincial Board of Health on account of the sanitary information which it disseminates, and the practical assistance and advice which it has afforded in instances when outbreaks of infectious disease have been brought under its notice; and we have to acknowledge, on the other hand, that such assistance and advice as have been given have been thankfully received and acted upon.

It may be well here to notice the excellent understanding existing between the local Boards throughout, and the Provincial Board, the latter always enjoying the support and countenance in its operations, of the officials and dwellers in localities wheresoever occasion may have called for its interference.

As a mark of the improved sanitary state of the country, it may be stated that gradually the direct interference of the Board is becoming less frequent. The interest in sanitation on the part of the people is growing and thus good hope may be entertained that in due time all opposition to or neglect of sanitary measures will meet with deserved reprobation. That time, however, has not yet fully come, and conditions arise in which they whose duty it is to guard the community from importation of infectious disease, have their endeavours to that end angrily opposed. As an example let me cite that of a body, dead of an inflammation of the fauces associated with fever, sent from an institution in Boston, in which several deaths had occurred, with similar symptoms preceding, which was sent to Hamilton certified as having died of septicaemia, the certificate having been granted on the negative evidence that in microscopic examination the Leoffler bacillus had not been found. Against such a dangerous proceeding as that adverted to, the indignation of a well informed society is a better safeguard than the coarser means of legal penalty, and it is one of the offices of such institutions as we, who are here, form, to advocate society to use its powers. There are occasions when public opinion, being enlightened, is stronger than legal process. It

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will be a matter gratifying to the Board to know that in the past years there has been much diminution in the prevalence of infectious disease, and there is good ground for the persuasion on our part that this happy condition of things can be justly attributed to the care and provisions of the health institutions of the land. The value of these institutions is becoming more and more apparent the longer they exist, and again it is hoped that further experience of their beneficial influence will bring about a more ready compliance on the part of all with those rules which it is the function of health institutions to devise and to obtain the enforcement of.

In the Board some valuable literary work has been done, in the reading by several of its members of papers and reports which had a bearing on subjects of interest in its work. Able and full papers were contributed by the Secretary and Mr. McKenzie, the bacteriologist; by Dr. Kitchen and by Dr. Cassidy. In these, subjects of importance were dealt with, such as rabies and its occurrence in Canada, disinfectants, notably formaldehyde, and the especially important subject of the water supply of towns, and the relations thereof to the occurrence of typhoid fever. It need not be said that diphtheria, that ever present plague occupied time and attention, although no paper upon it was necessary; but the class of victims which it, for the most part, selects, its painful symptoms and its great fatality always secure to it a large share of the time of the Board, as does also the selfish indifference with which those bereaved by it convey their dead among communities which are as yet uninfected; and thus make possible the extension to others of the suffering which they so much bemoan in their own experience. Let us hope that as time passes, and thought comes to be given to the nature and purpose of preventive medicine, we shall all, even in circumstances the most grievous to ourselves, have respect to its requirements. Grief is often inconsiderate and selfish, but is no excuse for hazarding the infliction upon our neighbors of sorrows equal to our own.

In dealing with infection and the diseases arising therefrom, the Secretary in his report will enter into detail with respect to those diseases which most prevail, and he will show that as the result of certain sanitary precautions much suffering has been escaped and many lives saved. Prevention has been a successful work.

There is reason too to hope that means have come to light of aborting the dread diphtheria. The opportunities of testing have as yet been comparatively few, and it is possible that, for a time, the disease may have become less malignant, but meantime it appears as if by the injection of antitoxine diphtheria can be so mitigated as to be no longer a dangerous, or rather, an unmanageable affection. It would appear that in antitoxine for diphtheria, we have nearly a parallel to vaccine as a preventive of smallpox, and quite a parallel, in that, in this other cruel disease, it affords a relief to humanity equal to that brought to it a generation or two ago when vaccination was found to afford an escape from the terrible mortality of smallpox, as well as from the disfigurements which old men amongst us remember as marking so many of those who survived it.

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## II. REPORT OF THE COMMITTEE ON EPIDEMICS.

May 6th, 1897.

*Mr. Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—Your committee begs to report that the past quarter has continued to show the absence of any notable prevalence of the more severe types of contagious disease, excepting scarlatina, which has been more than usually prevalent in Toronto, St. Catharines and one or two other centres. That the mortality per cent. of cases has been low, may be gathered from the following returns :

	January.	February.	March.	Total.
Deaths in Cities	5	13	16	34

*Diphtheria.*—While the disease has been present, the total deaths during the three months as compared with the three preceding, show no marked prevalence, while the deaths from it in the cities have been, on the whole, low.

	January.	February.	March.	Total.
Deaths in Cities	30	46	28	99

There have not been wanting, however, evidences that while the incidence of these diseases has on the whole been small, this perhaps has been due more to the individual action in some cases of the attending physician, than to the activity of the local board of health. This condition referred to in the last quarterly report of your committee, is accentuated perhaps by such a statistic as the following, showing the nominal cost of work done in a single county :

Municipality.	Population.	Expenses in 1896 by Boards of Health.	Expenses per head.
Township of York.....	23,257	\$506 00	2 $\frac{1}{10}$ cents.
" Scarborough .....	4,028	66 00	1 $\frac{3}{5}$ ..
" Markham .....	5,681	Nothing.	.....
" Vaughan .....	5,292	\$3 00	1 $\frac{8}{5}$ cents.
" Etobicoke .....	4,557	103 00	2 $\frac{3}{5}$ ..
" King .....	6,067	69 00	1 $\frac{1}{5}$ ..
" Whitechurch .....	4,019	12 00	3 $\frac{1}{5}$ ..
City of Toronto.....	200,000	30,000 00	15 "

Or again by the point which has been raised as to the requirements of section 83, sub-section 4 of the Consolidated Public School Act, in the matter of the inspection of unsanitary school premises by the medical health officer on the request of the county school inspector as referred to in correspondence submitted.

It will be seen both from the statistics given and the question raised, that the municipal mind is especially concerned on this question of the salary of a medical health officer. It is not perhaps so much whether the money should be spent as to who should be paid, for in one of the cases referred to the members of the board for hearing the medical health officer's report on schools, were receiving a per diem allowance, while objecting to his fees.

From all this it is apparent that there are several questions raised.

1st. Is the work of reporting, isolating and disinfecting in cases of contagious disease a municipal necessity.

2nd. If so, is the existence of a medical health officer necessary to supervise in these matters.

3rd. Is such an officer to perform such duties in a regular manner, or only when things get so bad that the municipal authorities fear public disapproval for further inaction.

4th. Is such an officer to be paid a sufficient amount of salary to really encourage him to do the work, or must he simply look for a fee, when specially ordered to act.

5th. Is the work he does really worth what, as a physician, he thinks proper to charge.

On complaints made to your committee only last week, by one of our larger cities, regarding the danger from the inaction of the township adjoining the city, it was pointed out that the sanitary inspector got \$15.00 a year and the medical health officer nothing.

With these facts and problems before us, which illustrate the prevailing views in many parts of the country, your committee is quite prepared to observe the logical outcome of this state of affairs in the legal action which is reported in the case of a ratepayer of a township near Barrie, for damages for \$10,000.00 for neglect, which, it is averred, resulted in the death of his four children from diphtheria. Your committee will await with interest the decision of the courts in this matter, but it may be remarked in passing, that English decisions are quite clear as to the location of responsibility.

The question is, however, enlarged when one municipality doing its duty may find it necessary to seek damages for municipal neglect on the part of another. This point seems to have been definitely settled in two suits which have already taken place in this Province, so far as direct transmission of a person suffering from contagious disease from one municipality to another, on the order of the Board of Health, is concerned; and it remains to be seen whether official inaction or neglect to perform duty whereby transmission of disease from one municipality to another, as by infected milk from non-isolated premises where scarlatina or diphtheria is present, is a subject for damages.

The reasonableness of the argument as to municipal responsibility seems plain. The statute limits the power of a municipality to protect itself in cases of contagious disease outside of a one-mile limit beyond the municipal boundary, apparently on the assumption that the neighboring municipality is taking sufficient action. The extent of such municipal responsibility once recognized, and it is apparently impossible to draw the distinction between sins of commission and sins of omission, it must necessarily have a widespread application in so far as those diseases are concerned which are specifically referred to in the Public Health Act. Take the case of tuberculosis transmitted by milk. The Act requires and particularizes municipal inspection of animals and their products intended for food, by local boards of health. Can the neglect to prevent the distribution of such milk, where a herd is known to have tubercularized animals, be held to be a legal cause for damages where it can be proven such milk is sold?

The more easily detected case where scarlet fever or diphtheria being on the premises, and milk therefrom is allowed to be sent to a neighboring municipality and sold in houses where scarlatina cases occur as a probable result, is one of immediate interest and importance. Doubtless action in some such case as the one referred to, reported recently, will cause the various questions of responsibility to assume their relative positions from the legal standpoint.

Going incidentally from the discussion of this subject, your committee begs to refer to its last quarterly report, February 10th, 1897, in which the following paragraph occurs :—

“ *Animal diseases.*—The quarter has been notable for having seen the Board’s efforts successful in obtaining such an Act and regulations made under it as will, it is trusted, speedily place the whole work of inspection of dairy cattle and abattoir inspection in the Province on an advanced and satisfactory basis.”

The Board’s satisfaction as expressed in this paragraph has however been short lived, in view of the action which has been taken by the Legislature as expressed in the following clause :—

“ The operation of section 4 of the Act to provide for the Inspection of Meat and Milk Supplies of Cities and Towns passed in the fifty-ninth year of Her Majesty’s reign, and chaptered 63, is hereby suspended and no proceedings shall be taken under the authority of the said section until the close of the next session of the Legislature.”

Without criticizing the action which the Legislature in its wisdom has deemed it proper to take, it will not be without profit that your committee reviews the action taken by this Board in its efforts to limit the prevalence of tuberculosis.

The following papers *re* consumption and tuberculosis have been prepared and published by it.—

- 1882.—Why so many People die of Consumption (paper).
- 1882.—Report on Model Dairies.
- 1885.—Cheese Factories.
- 1887.—Report on Inspection of Public Milk Supplies.
- 1888.—Inspection and Regulation of Public Milk Supplies.
- 1888.—The Contagiousness of Consumption (paper).
- 1889.—Report on Actinomycosis in Cattle.
- 1889.—Report on Inspection of Cheese Factories and Dairies.
- 1889.—Bulletin prepared on Tuberculosis.
- 1889.—Tuberculosis as a Zymotic Disease.
- 1892.—How consumption is spread, and some measures for its prevention.
- 1894.—Influence of Climate on Prevalence and Cure of Consumption.
- 1894.—Report on a Home for Consumptives.
- 1895.—Review of the Elements entering into some Canadian Climates in relation to Tuberculosis.
- 1895.—Report of the Committee on Epidemics on a Home for Consumptives.

The following papers, resolutions and regulations regarding inspection of cattle and dairies :—

- 1891.—Milk Supply Problem from the Public Health Standpoint, and some practical methods for securing safe public supplies.
- 1895.—Report of Committee on Foods and Drinks. *re* Inspection of Cattle, Meat and Milk.
- 1895.—Contagious Diseases in Cattle, and Cattle Inspection.

The following Acts regarding inspection of animals and their food products have been passed :—

- 1896.—Act relating to the Inspection of Meat and Milk (Pamphlet No. 1, 1896).
- 1890.—An Act to amend the Public Health Act respecting the sale of meat and milk from animals affected with tuberculosis.

1891.—Act to add Actinomycosis to the list of contagious diseases of cattle.

1895.—Act to inspect meat.

1896.—Act relating to the inspection of meat and milk.

In addition to these Acts there has been in existence since 1887, and prior thereto, the Animal Contagious Diseases Act of Canada, which not only prohibited the sale of any animals affected by any of the several diseases mentioned therein, but a penalty of \$200 was attached therefor. Whether such laws have been enforced or not, or whether provisions for their enforcement existed either under Provincial laws or Dominion statutes need not here be discussed, but it certainly was upon these accumulated health enactments, giving powers to Federal, Provincial and Municipal authorities, to take steps for stamping out what all these enactments specifically state to be diseases dangerous to the public health, that your Board urged with success that the Act of 1896 should be passed, supplying specific methods whereby this desirable inspection should be carried out by every city and town which choose to take action for the protection of its own citizens.

With this brief *résumé* of the Board's efforts for the limitation of the prevalence of tuberculosis, the Board will not certainly be accused of having overlooked its plain duty in the matter as guardians of the public health; neither can it from the mass of literature published by it dealing with the subject from every standpoint, be looked upon as not having fully realized what the measures advised by it implied in practice. It has too often, during the fifteen years of its existence, realized that infectious diseases can be eradicated only by removing the cause to have any doubt as to whether the methods which have been followed by it, and all other foremost scientific authorities, are alone those which will be found efficient to deal with the disease.

The Board must therefore leave with those who have undertaken to deal with this matter the responsibility of such action as is demanded by the situation.

### III. REPORT ON CONTAGIOUS DISEASES FOR THE QUARTER.

July 23rd, 1897.

*To the Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—Your committee take pleasure in reporting that the general sanitary condition of the Province since its last report has continued good, and that with two or three exceptions no extended local outbreaks of disease have called for extended action.

*Smallpox.*—As has been set forth in the public press, cases of smallpox have occurred both in Winnipeg to the west and in Montreal to the east. The first outbreak certainly, and possibly the second, was due to the introduction of the disease by Chinamen, who passed through from Vancouver eastward about the 22nd of May. Although vaccinated and so personally protected, they seem to have had infection either on their person or in their baggage. The Montreal cases occurred at the beginning of July, and the source of their inoculation seems still in doubt. At present the dangers of smallpox to Ontario are lessened by its inland position, and by the fact that immigrants for the North-west are most likely to either sicken on ship-board or after they have arrived at their destination. Yet it cannot be overlooked that as the tide of immigration from both east and west seems to be again setting in toward Canada the dangers which for several years past have been small will again increase. Thus it was reported recently from Winnipeg that a serious outbreak of scarlatina had appeared in a new settlement of

Galician immigrants in Manitoba, and the authorities of Winnipeg are seriously alarmed at the prospective cost of having to deal with outbreaks brought to them in this manner. In my recent trip west I learned of three cases of leprosy having appeared amongst Icelandic settlers in that province.

*Typhoid.*—In May several communications were received from the provincial authorities of Manitoba regarding the dangers to Winnipeg of the transportation there of a very notable number of typhoid fever patients from Rat Portage, our growing border town of the west. The situation there appeared so serious that your Secretary went at once, on the 19th of June, to investigate the reported outbreaks. The facts as stated in correspondence were largely confirmed, and the mayor, medical health officer and local board were found fully alive to the necessity for dealing promptly with the outbreak. A small but neat hospital has been erected and was opened during the time of the visit of your Secretary, who made suggestions on various points, regarding especially the source of water supply and disposal of sewage. The undoubtedly cause of the outbreak is due to the fact, first, that the general public have utilized the water supply from the Lake-of-the-Woods on which the town is situated by either going to the shores and dipping up water from the bays or by pumping it by hand at the town pump with a pipe some 159 feet out into the lake, or in several cases of hotels by pumps on the premises, either steam or windmill. The sketch herewith presented shows the position of the town and its two bays. The second cause is due to the irregular rocky surface of the town in many parts, making soakage from privy toward low grounds rapid. There are in some places polluted wells, while in others private drains which lead house sewage either to a creek which acts as an open sewer or directly to one or other of the bays. The dark waters of these lakes contain vegetable matter, and there is no room to doubt that the sewage polluted bay water has been the direct cause of the outbreak.

Your Secretary met the board of health and the council and urged taking prompt action in view of the facts to prevent the use of these bay waters, notably those of the town bay, but impressed upon the council the urgent need for a public supply. He also addressed a public meeting of citizens on the subject of the sanitary needs of the growing town. With the town engineer and mayor he likewise went over the ground, and advised that the town supply be taken from the lake, at a convenient point well above any prospective source of pollution. He is hopeful that a water main will be laid and a pumping plant established this summer whereby from hydrants conveniently situated the homes of the people may be supplied with a safe source of supply. The town of Fort William, which for some time has been endeavoring to obtain a public water supply, and which has been using water largely from the Kaministiqua River in front of the town, was also visited by your Secretary, and the source of the proposed supply up the river was investigated. A public meeting of citizens was addressed by him, and it is with pleasure that he can state that on the 15th of July a by-law was passed by the town for \$35,000.00 to at once establish a public town supply of water. It is with much satisfaction that your committee notes these several movements for improving the sanitary conditions of the growing towns of the Province.

*Scarlatina.*—As was remarked in the report for the quarter at the February meeting

"The monthly reports indicate that in several municipalities scarlatina has shown a more than average prevalence during the quarter. Fortunately the outbreaks have been generally mild." The outbreak in Toronto then referred

to as existing in January continued to progress. The several months of 1897 have had the following cases reported and deaths occurring :

January, 1897 . . . . .	cases 104 . . . . .	deaths 3
February, " . . . . .	" 172 . . . . .	" 13
March, " . . . . .	" 265 (to March 16th) . . .	" 15
April, " . . . . .	" 205 . . . . .	" 11
May, " . . . . .	" 212 . . . . .	" 11
June, " . . . . .	" 180 . . . . .	" 10
	—	—
	1,138	63
July to date, 21st . . . . .	50	—

It thus appears that, for the first time during fifteen years, Toronto has been visited with a widespread outbreak of scarlet fever, and it is of much interest and of the greatest importance where the Province has been practically free from this disease for so long a time to review some of its chief characteristics.

Its history shows it to be a remarkable disease. Its mortality in London from 1859 to 1870 was variable, but reached its height in the latter year, the death-rate being 1.22 per 1000, and dropped in the succeeding year to .27 per 1,000. Since that year the death-rate per 1,000 has with slight variations steadily declined ;

Year.	Cases notified.	Percentage of deaths.	Deaths per 1,000.	Cases, rate per 1,000 living.
1891.....	13,000	5.1	0.14	2.7
1892.....	26,363	4.3	0.27	6.4
1893.....	36,953	4.3	0.37	8.6
1894.....	18,495	5.2	0.22	4.2

Of these total notified cases the following percentages were treated in the metropolitan Asylums Board hospitals in each succeeding year :

1890 . . . . .	43	per cent.
1891 . . . . .	46	"
1892 . . . . .	49	"
1893 . . . . .	34	"
1894 . . . . .	64	"

The percentage of mortality according to the age is most important. From a total of 69,752 cases admitted to the metropolitan Asylum Board hospital, from 1871 to 1893, the average mortality was 8.3 per cent., but of these cases :

Under 5 years, 19,595 . . . . .	18.2	mortality per cent.
5 to 10 " 28,763 . . . . .	5.6	"
10 to 15 " 12,444 . . . . .	2.6	"

It will be seen from these statistics that the present epidemic in Toronto has much the same character, as regards severity, as these great numbers in London during the last five years.

In the great proportion of these cases where it has been possible to prove exposure, the period of incubation after a single exposure and the first feverish symptoms has been two, three or four days. The feverishness and sore throat may begin within forty-eight hours of exposure. Dr. Caiger, medical superintendent and lecturer on infectious diseases at the south-western Free Hospital, (Metropolitan Asylums Board) says: "The period of incubation is sometimes as long as five days, and in rare cases even six," but he says: "I have never met with an instance in which there was any valid reason to believe that the period had been longer than six complete days. It may be confidently stated, that, if the first case was properly isolated and the necessary measures for disinfection scrupulously carried out, the safety of the other members of the family is practically assured if no second case has arisen before the end of a week." He had under treatment altogether, in 1894, 2,728 cases.

The cases are capable of carrying infection from the very beginning of the sore throat and febrile symptoms, says Dr. Caiger, and that, "it is a good rule in practice to regard six weeks from the rash as the minimum period of quarantine. Whether longer is necessary depends largely on the peeling of the soles of the feet and the cessation of the mucous and other discharges."

Dr. Gayton, medical superintendent of the North-western hospital, who had charge of 1754 patients (scarlatina) in 1894, says: "The comparatively low death-rate of this disease as compared with that of fifteen or twenty years ago is much cause for satisfaction, and facts show clearly that the real cause of the enormous fatality in past times was that the cases were *treated* (so called) at home, where they could not in the majority of instances be properly isolated. Hence all the authorities of later times have come, more or less, decidedly to this conclusion that all, or nearly all, zymotic diseases should be transferred to hospitals set apart for the purpose, so arranged that each different kind of disease can be isolated in separate buildings or separate wards; indeed hospital treatment seems to be one of the most immense improvements ever introduced in medicine, and the means, which, when combined with others, will lead in time, if not to the extinction, at least to a most marked diminution of attacks."

Having thus summarized the principal facts which are thus associated with any epidemic of scarlet fever, it will be of interest to examine the epidemic of the last six months in Toronto in connection with these various points.

1st. The progress of the epidemic from month to month is seen in the following table :

1897.	Cases reported.	Deaths.
January .....	104	3
February .....	172	13
March .....	265	15
April .....	205	11
May .....	212	11
June .....	180	10
	1,138	63

Of these 35 or 40 per month were treated in hospital and the balance were treated in their homes. The total death-rate was 6.3 or 5.5 per cent. Taking the

returns for the month of May supplied by the city health officer up to the 6th of June, there were, in all, 280 cases. Of these, 198 attended school. They were in attendance, in all, at 47 schools. Of these schools the following schools had :

Huron.....	9 cases.
Landsdowne .....	10 "
Jesse Ketchum .....	9 "
Dufferin .....	7 "
Ryerson .....	14 "
Brock Avenue .....	11 "
Model .....	20 "
Queen Victoria .....	11 "
	— a total of 91.

From the report of the medical officer of health of London, England, we obtain the following :

Of 17,704 cases notified in 1893, there were

5,279 under 5 years of age.
6,727 " 10 " "
3,187 " 15 " "

or 53.2 per cent. were under 5 years, or under school age, as compared with those under 15 years, or 29 per cent. of the whole were under 5 years.

Comparing the cases from May 1st to the 6th of June, in Toronto, we find 65 under 5 years, not in attendance at school, or 20 per cent. of the whole, or

20 per cent. of the whole under 5, not at school.

70 " " attending school.

10 " " older than school age or reported not in attendance.

We thus see that while 70 per cent. of all the Toronto cases studied were in actual attendance at school, there were only 50 per cent. of the London cases of school age, that is 5 to 14 years, inclusive. Or there were 20 per cent. more cases amongst school children in Toronto than in London.

To show the extreme importance of the public schools in the spread of infection, the Medical Officer of London makes a table with three groups ; 1st, under 3 years ; 2nd, from 3 to 13 ; 3rd, over 13, and compares the prevalence amongst them for the month preceding, the month of the summer holidays and the month succeeding with the result :

Under 3 .....	Decrease in holiday month	1 per cent.
3 to 12 .....	" " "	26 "
Over 13 .....	" " "	13 "

Increase in succeeding month :

Under 3 .....	4 per cent.
3 to 13 .....	65 "
Over 13 .....	26 "

It is thus made apparent that the results of the numerous modes of communicating infection amongst the infant population under 5 years, or 11 per cent. of the whole population fails to create an increase or decrease in any month exceeding 4 per cent., but that the absence of the school influence at once makes a decline of 26 per cent. and a subsequent immediate increase when school opens of 65 per cent.

It would seem, therefore, a natural inference that July in Toronto should show a notable decrease of cases, and with another month of holidays a still greater decrease, and if the full effects of the six weeks required to complete desquamation is obtained we ought to expect the schools to open in September with a good chance of freedom from infection, and it is hoped that such measures will be taken that they will remain so. The figures for July to the 21st give fifty cases only reported for the month. That the epidemic has attained large proportions is seen in the fact that the rate of the past six months maintained during the year would mean twelve cases for every 1000 of the population of 190,000, much greater than the worst in London during the past five years, that of 1893 being 8.6 cases per 1000.

That the outbreak should have made such headway in so short a time is very remarkable, and it is well that we examine some of the principal reasons therefor.

1st. That there had existed a population in Toronto at least up to fifteen years of age very largely unprotected by a previous attack.

2nd. That the disease was at first mild, but not as mild as the London cases. The percentage of deaths to notified cases was 4.7 in London. In Toronto it has been 5.5 per cent. for six months.

3rd. The non-reporting of mild cases in some instances early in the disease.

4th. To the non-notification of the public of infected houses by the Health Department.

5th. The reopening of infected schools within too short a period after closing.

6th. To the comparatively few instances where the infected child has been removed from its home to the isolation hospital.

7th. To the too short time during which cases and members of the household have been kept from the public and school.

8th. To the lack of any systematic method of inspection of the 500 and more farms and dairies from which the milk supplies of the people have been taken.

Referring to these in order it may be said that the existence of a large unprotected population, while an unfortunate element in this case, has been a fortunate matter as regards public health in the past fifteen years. We have had immunity so long that perhaps we had begun to think diphtheria was our only plague of children.

*Re* the 2nd and 3rd points, the comparatively mild type of the disease is a cause for thankfulness, but the responsibility for non-reporting of cases must rest, nevertheless, distinctly upon the householder where no physician was employed, and upon the physicians when they were employed.

*Re* the 4th point, the non-notification of the public by placarding houses in the light of all the facts must be looked upon as a distinct mistake, as well as a neglect of the plain terms of the Statute (see sec. 81, P.H.A.)

When the small-pox, scarlet fever, diphtheria, cholera, or any other contagious disease, dangerous to the public health, is found to exist in any municipality, the health officers or local board of health shall use all possible care to prevent the spreading of the infection or contagion, and shall give public notice of infected places by such means as, in their judgment, is most effective for the common safety. 47 V. c. 38, s. 50.

Precautions  
to be taken  
against spread  
of infection.

as well as of the City By-law No. 2477, page 263 Edition of Consolidated By-laws of the City of Toronto, sec. 14 of which says:—

“The medical health officer within six hours after he shall have received notice of the existence of scarlet fever, diphtheria, small-pox, cholera or whooping cough in any house shall affix or cause to be affixed by the head of the household or some other person, near the entrance of such house a card at least nine inches wide and twelve inches long stating that such disease exists in the said house and stating the penalty for the removal of such card without the permission of the medical health officer of the board.”

Not only has the non-notification in the early days of the epidemic served to make the disease seem trivial in the eyes of the public, but it became the means by which many persons entered infected houses who would otherwise have been warned. More than this, it has caused supply men, as butchers, bakers, milk-men, and notably those supplying bottled milk, to become the possible means of transmitting disease to other customers while in complete ignorance of their actions. The result of this in the complete temporary paralysis of the business of one of the largest milk vendors will be referred to again.

As to the 5th point, the reopening too early of infected schools, everyone recognizes the extremely serious nature of breaking up even for a week a large public school, but it is manifest that if the closing of a school is to serve any useful purpose it should be for such a length of time as that every child living in an infected house would with the first case be kept away at least six weeks from school.

Regarding the 6th point, this question is immediately connected with the preceding. We have seen that in 1894 sixty-three per cent. of all the 11,598 notified cases in London were taken to the hospital and there detained for some six weeks, in some cases two or three months. The enormous extent of this work can hardly be understood, but as Dr. Wm. Gayton, medical superintendent North-western hospital, London, says in the Report of 1894, and as this board has said and urged, notably in the fight for the Isolation hospital in Toronto in 1892, the removal of cases to the hospital is the only effective and economic means for dealing with outbreaks of all epidemic contagious diseases, both in limiting their spread and in saving life. Not until the hospital was established in Toronto in the face of the greatest opposition was it found possible to deal with diphtheria, nor will it be possible to deal with scarlatina, if the experience for years of the health and hospital authorities of London be accepted as correct.

As regards the 7th point, the period of quarantine during convalescence, we recognize the practical impossibility of extending it to a sufficient length in the very many mild cases where patients are treated in their own homes, while the hardship of a quarantine of six weeks for all the members of a family, but especially the poor, is too great to be endured. Prompt removal of first cases, with immediate disinfection, and a week's isolation of the family are easy, scientific, and practical means of dealing with scarlatina.

As to the 8th point, the inspection of places where food, and especially milk, is prepared and sold, it must in the very nature of things be very closely followed up. It will be remembered that in the report of your committee on epidemics early in February, the existence of scarlet fever on three milk farms in Toronto township was referred to, and it was made apparent how great the danger from this source might become, since it became apparent on investigation that the rural boards of health make no pretence of inspecting dairies or of preventing milk coming into the city from such places. To aid the city health officer your secretary sent out a circular to the 500 and more dairymen, and it has, it is believed, been of some service. The fact that in March the police magistrate refused to convict a milk dealer who knowingly had been buying milk from a farm where

the disease had been for some two months seems to have been instrumental in deterring the city health department from insisting on an inspection of every farm and dairy sending milk into the city, for in a certificate to a large dairyman as to the freedom of his premises from disease, the city health officer states that this dairy farm is outside his official jurisdiction. There can, therefore, be no wonder when finding the daily number of cases increasing, and finding what seemed more than the usual number of cases in houses supplied by one of the largest dairies, the city health department should feel that there was a probability that the distribution of this milk by bottles might be contributing to the spread of the disease, and acting upon the presumption the city health department did order this milk vendor to discontinue the delivery of milk within the city. As the preparation and delivery of milk by bottles was urged by your secretary some ten years ago as a step in sanitary progress of the first importance, he has naturally desired to enquire as to how far the action of the city health officers was founded on a basis of fact. The fact that the milk, at once taken from the dairy stables, is aerated and cooled, placed in bottles tightly sealed, free from dust or contamination from soiled hands or dippers, water or ice added from unwholesome sources, as well as that the exact quantity of the milk be always delivered to each customer and that the keeping qualities of the milk are very greatly increased, have become so generally understood and accepted by all prominent dairy companies of Germany, of London, and the great cities of the United States, that bottled milk is everywhere looked upon with favour by the better classes of the public, who are quite content to pay more for the extra expense involved in its preparation. The city health officer in his last monthly report to his board has laid great stress upon the dangers due to the bottles coming from houses where infectious disease exists, and they being contaminated, going back to the dairy and so infecting a general supply. Under the methods which have been pursued in dealing with scarlatina in Toronto during the past six months, where as in the case of this single dairy some 22,000 bottles were delivered in a single month, it well may be that some bottle coming from an infected house, unknown to the dairyman,—and where there was no means, either to the dairyman or the health officer, of knowing whether or not such a bottle had been disinfected,—may have infected the hands of the delivery-man; but to attempt to lay the blame for disseminating disease upon the milk vendor, and to be oblivious to the fact that neither of the two essential and legal conditions of protecting the public, viz.:—a removal of the patient to the Isolation hospital or the placarding of the house, has been carried out, would seem to indicate a misapprehension of the actual facts of the situation or a conviction that the public at large will accept such published statements without examination. Such a statement is, however, wholly contrary to the facts as under the practice elsewhere. For instance, in the city of Buffalo, where, if patients are not generally taken to the hospital, at least every house where the disease is reported is at once placarded, should any milk-vendor, thereafter deliver milk in bottles at such a house, he will, if discovered, at once be summoned before the magistrate and fined, or has his license rescinded. In order however, that the actual dangers arising from the distribution of milk to the extent of 22,000 bottles may be accurately estimated even under these conditions, your secretary has analysed the total cases during May and six days in June on the returns supplied by the city health office with the following results: Of the total 198 school cases reported to the city health officer during the period, 63 were reported customers of one dairy; of these 63 cases, 41 were reported as attending school, or 65 per cent. of the whole cases supplied by this dairy. Of the 41 cases 23 went to 4 schools, viz.—Huron, Lansdowne, Model, and Queen Victoria, while 54 out of the 198 infected school children of the city during this period, or 27 per

cent. of all the school cases occurred in the population of the schools of Lan Isdowne, (969); Huron, (706) Queen Victoria, (751); Model (534); or a total school population of 2,960. Now the registered number of pupils in the city for the year excluding the model and separate schools was 26,571, or schools with slightly more than one-tenth of the pupils had 27 per cent. of all the school cases.

Of these schools, moreover, the Model school had 23 cases or 11/6 per cent. of all the cases in a school population of 26,571. A closer examination of these cases is of still more interest. From the 1st to the 31st of May, 15 of these 23 cases had occurred, and only three of them on the route of the condemned dairy. From the ages of the children so far as given they divide apparently into two classes or rooms, or in other words were exposed to two common sources of infection. I am informed by the city health officer that he has had constantly to struggle against the attempts to have children certified free from the disease by physicians, return to school. This, with perhaps some non-reported cases amply serves to explain the presence of infection in the schools.

The fact of a number of cases from the 31st of May to the 5th of June being on the route of this single dairy, which from the 26th of June had used absolutely new bottles, new brushes, and boiled every bottle after washing, along with the known incubation period of 3 to 4 days for the disease, presents much food for thought to those who have attributed the disease to bottled milk. Such other facts as that where with 13 families supplied by the same dairy in Rosedale, but 4 children—all school children in the same school—had the disease, and not another case reported in these families during the period, or that in 12 families supplied on Yonge street, outside the city not a single case occurred, ought surely to be sufficient to make the city health department pause before doing, as the report of its officer condemning bottled milk would tend to do, irreparable injury to the one great method by which the quality and character of the milk supply of Toronto has during the past few years been so wonderfully improved.

Let the public health statutes and the city health by-law be enforced as regards either immediate removal to the Isolation hospital or placarding of premises where cases of disease are, and the people will at once be freed from at least one source of possible danger.

It is with much pleasure that your committee has learned of the notable decrease of the disease since the schools closed at the end of June. But this Board and the city health authorities have to realize that experience as regards diphtheria in Toronto, as well as that of London with regard to scarlatina, teaches that if every possible means known to health authorities be not fully taken advantage of, the city will see the epidemic expand again in September, and another winter of anxiety for thousands of homes follow. If with only an average of fifty per cent. of all cases in London and seventy per cent. in Toronto schools, the increase after the holidays in the former was sixty-four per cent., we may expect—except that our vacation is longer—a similar result almost immediately to follow in Toronto. The recent great epidemic in London extended from 1890 to 1894, and similarly, 4,500 new children born in Toronto every year, together with the large number approaching school age yet unattacked, will supply fuel to feed the flame for years to come. With these facts, and the almost stoical belief on the part of many parents, in view of the experience of the past six months, that if their children must have it they had better have it now, it will require the health authorities to strain every nerve to deal with the problem. If our mortality has been 5.5 per cent. of all cases parents must realize that the average mortality in London, with a similar total percentage was 18 per cent. of all children under five.

*Recommendations.*—Your committee would recommend that the local board of health adopt the following steps:

1st. That it should on being notified of any case of scarlatina require the immediate removal of the case to the Isolation hospital.

2nd. That should this not be at once complied with, the household be quarantined until the six weeks from the occurrence therein of the last case shall have elapsed, and the house be placarded.

3rd. That inasmuch as your committee is informed that the Isolation hospital wards of the city set apart for scarlatina have been full during the past six months, and that they have proved wholly inadequate for the demands upon them, that the local board of health be directed to supply itself with such additional hospital accommodation as is required under the Act.

4th. That the Board be urged to extend systematic inspection to every dairy or farm sending milk into Toronto, as is the practice in other cities of the Province, the freedom to inspect such being the condition on which a permit to send milk into the city be granted.

In conclusion, your committee in notifying the city health authorities of Toronto of its recommendations desires that the Board express its anxiety and willingness to lend every assistance within its power to mitigate, and, it is hoped, finally stamp out the serious epidemic which exists at present.

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#### IV. REPORT OF THE COMMITTEE ON EPIDEMICS.

August 16th, 1897.

*Mr. Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—Your committee begs to report that the general health of the province remains good, notwithstanding the fact that it has been temporarily endangered through the introduction into the province of smallpox in such a manner as to have caused reasonable alarm of an outbreak in several municipalities.

According to information, which is believed to be accurate, as obtained in evidence taken by your committee in an enquiry held at Belleville on August 3rd., 1897, under the powers contained in section 11 of the public health act. A young man employed on an emigrant ship, landed in Montreal on the 27th of July, remained there, according to his own account, while sick with an eruption of smallpox for two days, sleeping, if he is to be believed, in hotels, and on the 30th came west on a train, arriving in Belleville early in the morning of the 31st. Being sick and lacking funds, he went about 7 a.m. to the telegraph office and remained therein some two hours, awaiting permission to telegraph to Toronto, where his mother lived, for money. He was seen by the superintendent of the office to be sick and have an eruption, which caused him to be asked to leave the office. He went into the alleyway near by where several workmen and others were exposed to him, they conversing with him freely. He again entered the telegraph office about 2 p.m., where he remained a short time. No reply from Toronto having come, he again went away into the lane, remaining there till about 4 p.m., when money which had been telegraphed for arrived, was given to him in the lane, and a receipt for it signed by him. The impression of the clerk, Mr. Canniff, who made this statement is—"that the man had smallpox, and I had not been prompted to this opinion."

The evidence of the clerk further states, "That he left the lane within five minutes thereafter." These statements are corroborated by the evidence of a plumber working on a building beside the lane. This latter witness states, "I did not pay any more attention to him until Dr. Tracy (M.H.O.), came along, between four and five o'clock, and I saw the doctor examine him." Further, in evidence, this witness states, "I said to him I guess you have smallpox."

Dr. Clinton, a physician in Belleville, stated in evidence, "that between four and five o'clock on July 31st., as he was driving along Bridge street, he was asked to examine the man already referred to, and did examine him, the man being brought to the side of his buggy." He says, "I advised policeman to have him isolated, and prevent him mingling with the public, because I thought him to be a dangerous man to be at large, believing he had smallpox. Policeman Morton said he had no authority to detain him, I then advised him to report at once to the medical health officer of the board of health."

Dr. Tracy, the medical health officer, states in evidence, "about 5 p.m. Saturday, 31st July, some person spoke to me, stating that there was a man sitting by the express office and was looking sick. I went in to see him and asked if he was sick? He said he was not, but that he was waiting there for money by express from Toronto, I then examined him." . . . "I went over to see Mr. Robertson and Mr. Masson (city clerk and city solicitor) at city hall, and Mr. Masson discussed the Health Act with us. In the meantime the sanitary inspector, Morton, came in, I said to these gentlemen that I had a suspicious case

at our express office which might be smallpox, but was doubtful, and stated the case ought to be taken care of for several days to be under observation. I asked Morton where one could get a place and he suggested Rosa Thompson's house. I left to drive to Rosa Thompson's and Morton left for the express office to arrest the man and bring him down. I waited fully half an hour at Thompson's, till nearly 6 p.m., Morton not arriving, I went to hunt him up."

Morton, the sanitary inspector, states in evidence, "I went to the city clerk's office, I was not there more than five minutes. There were present the city solicitor, Mr. Robertson and Dr. Tracy. It was decided then that it was advisable to put the sick man in an isolated house, and Dr. Tracy left to look up a house. I suggested Rosa Thompson's. I went back to where this man was, and found that he had disappeared. My instructions then were to bring Whitney down to the vacant house."

Mr. D. Robertson, city clerk, states in evidence, "There was a distinct understanding that he, Whitney, was to be detained, and action to be taken to that end."

All the evidence given thus makes it plain that the case was considered suspiciously like smallpox and that the isolation of Whitney was necessary in the public interest.

Sanitary Inspector Morton further states, "I left man standing on road when I left to go to the city clerk's office. As I stated, Whitney was gone when I got back from city clerk's office."

Johnston, the plumber, states in evidence, "Dr. Clinton drove away and Whitney crossed road back to gangway again and he asked me if he could get a train for Toronto? I told him he could not get one, I thought, till two or three o'clock in the morning. He asked me if a boat went up, and I said yes, about 8.30 p.m., and he said I will go and get my overcoat and go to the boat. So he left me then. I told him to go by way of Pinnacle street, as he would not meet so many people, as there were a great many gazing at him and he did not seem to like it. But he went up Front street and I lost track of him there until I was visiting Mr. Newman, a friend of mine on the Passport, and I saw the man. Whitney got on the forward gangway of boat." . . . "I spoke to him at boat. I said, I suppose you are going. He said, yes." "He came out from behind wood-piles and oil barrels. He was out of sight till boat came in. I saw chief constable on the dock, but was not speaking to him."

Johnston further states that Whitney left him to go for the overcoat. "No one went up street with him. Morton (the sanitary inspector) came to me after Whitney had gone, and said, 'I want that man.' I told Morton he had gone up Front street, and Morton went after him. It was not five minutes after man had gone that Morton asked me." Dr. Tracey, M.H.O., states regarding the events which followed:

"After driving around a considerable time, I found him (Morton) on Front street, half a mile from express office. He stated that when he got back to express office, the man had received his money and skipped, and he had since been hunting for him, and could not find any trace of him. I went through station and asked about him. There was a train leaving about five minutes to six; he had not been there. I went about city making enquiries, and went back as far as Pinnacle street, and around back to station. While passing Lott's place, Morton cried out, 'I believe that was the man on the car.' The car stopped, and man came up to buggy. I recognized him as the sick man, and I further questioned him and ordered Morton to take him along Pinnacle street. He did so,

and got him something to eat. This was about seven p.m.. I considered the order of five o'clock in force, that is, to take him down to Rosa Thompson's. I saw no more of him."

Regarding what occurred at this time, sanitary inspector Morton states in evidence : "I met Dr. Tracey and told him the man had got away. This would be half an hour after I left Mr. Robertson's office. We then drove up Front street, and Mill street, towards station looking for the man. We did not get to station but opposite Lott's factory when we saw man on car. I called him off car. There was one passenger besides." Questioned as to "what happened then?" Morton states, "Dr. Tracey asked him some questions as to pain in back and if otherwise sick; man said 'no.' About head? Had no headache. We asked where he came from? He stated he left Montreal Thursday, he and two others had beaten up on freight cars. He gave name of ship I think he said he was sick in Montreal, but do not remember when he said his face broke out. Dr. Tracey then said he did not think his a case of smallpox. Dr. Tracey did not at any time instruct me to take man to Rosa Thompson's. To the question 'when you were left with man, was there any understanding what the man was to do?' No, the doctor then said 'let the man go and buy him some provisions.' I bought him provisions with money he gave me. The man was there waiting for me on Pinnacle street. I had not orders or instructions from the doctor to take the man down to Rosa Thompson's house, although I had had in the afternoon. I considered then my supervision of the man was at an end. I told him to get out of town as fast as he could and keep away from people."

"I did not look for him any more. I did report my final action with man to Dr. Tracey. I reported about 9:30 p.m. to Dr. Tracey that I heard that man had gone away on boat. I think doctor said, 'Toronto people would be warned.' To the question 'Did you not think it strange that Dr. Tracey should tell you to let man go and afterwards tell you that he had warned Toronto people?' I did not think anything about it at the time."

To the question, "Why did you consider it your duty to notify Dr. Tracey that man had gone on boat?" Morton stated, "I did not think it my duty, but I had heard this, that a man said that he had gone on boat, and out of curiosity I told the doctor what I had heard."

To the question, "Who gave you the information?" Morton stated, "George Johnston, the plumber."

Concerning the occurrences referred to in the evidence of Morton just quoted, Dr. Tracey, M.H.O., states:

"I saw no more of him. I failed to meet anyone who had seen him. I did not think of the steamer, as we seldom go down there. Steamer leaves about 8 p.m." To a question regarding Rosa Thompson's house, Dr. Tracey stated, "I would have taken possession of house if I had gotten the man. About nine p.m., a man whose name I did not remember, but who knew I had been hunting for Whitney, met me at corner of Quinte hotel, and stated he had seen a man with a dark overcoat go on the forward gangway of the steamer and thought he looked like the man who had been in the express yard. The man had not an overcoat when I saw him, but thinking possibly it might be the party, I telephoned Dr. Sheard in Toronto, about 9 p.m., and got him about 11 p.m. I stated to him that a suspicious case like smallpox might be on the *Passport*, and to look out for him. I could not see where else the man could be as he was not about the station, and I thought he might have got off by steamer."

In answer to a question regarding the fitting up of the Rosa Thompson's house, as to how he thought Morton would take care of the man, Dr. Tracey stated, "I presumed Morton would have got goods, bedding, etc., on my order, but gave no order for them. I was surprised when I learned Morton had allowed his man to go. I did not see Morton again till Sunday, as he left with the distinct understanding he was to take care of him."

To the question, "Did Morton ask you to discharge the man?" Dr. Tracey said, "he did not, and I did not tell him to let him go."

Such are the main facts bearing upon this most unfortunate occurrence. As to the man Whitney, there would seem to be no doubt as to his culpability, and as to the occurrences which led to his being allowed to escape from Belleville, those who read the evidence herein given, will not fail to form an opinion as to the culpable neglect, and the indifference to the public welfare, which allowed the man to escape.

That any person, who has reason to believe he is suffering from smallpox, should deliberately mingle or be allowed to mingle with the public, and still more to travel from one municipality to another, is a thing which has rarely happened, or been allowed to happen in Ontario during the past fifteen years, and your committee would recommend that the evidence bearing upon this case be transmitted to the law officers of the Crown, in order that such steps may be taken as shall best serve to prevent the repetition of such acts in the future.

Your committee has further to state that it at once, on learning of the main facts of the case, did on Sunday, August 1st, notify the medical health officer of Belleville to hunt up all exposed persons and vaccinate them, and on Monday, August 2nd, instructed the council of the city of Belleville to proclaim public vaccination and immediate vaccination of all exposed persons. This action has been taken by the council and the local board of health, and it is hoped by it the local danger may in a large measure be averted.

Your committee has further to commend the prompt action taken by Dr Sheard, the M.H.O. of Toronto, to prevent danger arising from the possible infection of the passengers of the *Passport*, owing to which action there is every reason to believe that no further cases of the disease will occur in the city.

Your committee believes that with these occurrences and with the present existence of smallpox at several places in the Dominion, the time is opportune for urging anew on all the municipalities of the Province the vaccination of all school-children, as evidence exists everywhere of a very general neglect of this absolute preventive, if not of an occasional case, at any rate of any widespread epidemic.

Your committee begs further to report that through the Secretary the town of Smith's Falls was visited on the 28th of July, both in relation to sewage disposal and the existence there of scarlatina. He met the local board of health, indicated the danger of inaction, and had action taken at once by the local board to obtain possession of a large building in the suburb as an isolation hospital.

Your secretary also visited the town of Picton, where diphtheria had been present for some months. An examination of all the returns made to the medical health officer showed direct connection of almost every case with a pre-existing case through direct contact or by visiting infected houses. Your secretary, with the medical officer, inspected various portions of the town, and approved of a large house in the suburbs as an isolation hospital, and subsequently met the local board of health and physicians of the town, and discussed the needs under the

circumstances. There was a concensus of opinion on the part both of the physicians and local board, that an isolated building to which first cases could be taken was necessary and the local board took subsequent action to have the building referred to obtained and fitted up. The prompt action has resulted in restoring public confidence in the general healthfulness of Picton.

Your secretary likewise visited Montreal in connection with the smallpox outbreak there. He was received with every courtesy by the provincial and city health authorities, and visited the smallpox hospitals in both Montreal and Westmount. The provincial authorities have been most active in their efforts to limit the spread of the disease, and as no new cases have been reported for ten days, there is every good reason to hope that, unless some new source of contagion has been introduced to the city, the outbreak there is at an end. The existence of an outbreak of chickenpox during the previous six months has been referred to locally in Montreal as a point of much interest, and, indeed, in the last family reported, although unvaccinated, the first case has been so mild as to lead the physician to diagnose chickenpox. The city authorities there have instituted a general vaccination, increased public stations, and vaccinators have been appointed. The Westmount family, the source of whose disease has been a mystery, living as they do in a residential suburb, miles away from the wharves, illustrates the danger of neglect to vaccinate. There are four children and a servant, all infected from the first boy of ten, all of whom were unvaccinated. Delay in diagnosis had enabled them to be inoculated with smallpox the new vaccination running concurrently. The family had moved from Ontario, where we are supposed to have the child, or school, population, very generally vaccinated.

Submitting the report with the several matters contained in it for your consideration, your committee have the honor to be,

P. H. BRYCE,  
J. J. CASSIDY.

#### REPORT OF THE COMMITTEE ON EPIDEMICS, ON RABIES.

TORONTO, August 17th, 1898.

*To the Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—Your committee, as instructed at the last meeting of the Board, begs to report that it has considered the practical question of dealing with hydrophobia in Ontario. In the report submitted to the Board by Mr. J. J. Mackenzie at the last meeting, the history of the appearance of rabies in Ontario during the last seven years was set forth at some length.

The report states

"In view of this fact, and in view of the persistent appearance of the disease from time to time, entailing always considerable expense to municipalities, I have thought it well to bring before you all the facts at our disposal in regard to the occurrence of the disease in Ontario.

The first outbreak of which we have any official knowledge took place in the county of Middlesex in May, 1890.

On May 12th, 1890, the local board of health of London, Ontario, communicated with your board with regard to the prevalence of a disease in the dogs of the city and district which resembled rabies.

On May 20th of the same year the health officer at Dorchester station, Dr. Graham, advised your Board that a man had been bitten by an apparently rabid dog. This man was the first one from Ontario who was treated by the Pasteur method. An investigation into this outbreak was made in the laboratory by the inoculation of animals, but the results were not satisfactory. The fact, however, that several domestic animals which had been bitten by this dog developed typical hydrophobia in about three weeks' time, pointed conclusively to the character of the disease.

In 1892, 1893 and 1894 only one outbreak was brought to the attention of your Board, which possibly occurred in 1894, because I find that there is a record in the books of the Pasteur Institute, New York, of a patient from Ontario being treated there during that year.

In 1895 a second outbreak took place in the county of Middlesex, this time in Ekfrid township. A report upon this outbreak is contained in the Annual Report for that year, page 43. This case is interesting, as being the first occasion upon which it was conclusively proved that the disease was rabies; this was done by animal inoculations, a full account of which is contained in the report cited. During this outbreak one man was bitten and was sent to New York for treatment. He remained well under treatment and has not since developed the disease.

During the summer of the same year the head of a sheep was sent to the laboratory from Paris, Ontario, the animal having died of suspected rabies. The material was, however, in such an advanced state of decomposition that nothing could be done to settle the question, but subsequent enquiries revealed the fact that at this time some twenty sheep in a pen were bitten by a stray dog reputed to be mad, and that all developed symptoms of the disease and were killed in from fourteen to twenty-four days after, the usual incubation period of street rabies.

In addition to these two outbreaks in 1895 it is possible that two others occurred, although the facts were not brought to the knowledge of the Board, because we find a record of two persons from Ontario being treated for the disease in New York, in addition to the man from Ekfrid township.

In 1896 a second outbreak occurred in Paris, this time in the town itself, and three persons were bitten and sent to New York for treatment. The inoculations of rabbits with the medulla of the dog in this case produced rabies in three animals, proving conclusively the character of the disease. A dog whose remains were received from Paris about the end of 1896, was proved also to have had rabies. The material derived from this outbreak was used for a continued series of investigations into the pathology of rabies which has been carried on in the laboratory during the winter.

On Tuesday, June 1st, 1897, word was sent to the Board by Dr. J. W. Smith, Dundas, that a child had died in Dundas with symptoms, and under circumstances which pointed to rabies. The cerebellum, medulla and portions of the cord were sent to the laboratory, and not only microscopic study made, but also inoculation of rabbits. The microscopic examination showed that there had occurred capillary haemorrhage at various points in the nerve tissue, and that here and there the capillary walls were much thickened by a proliferation of the endothelium and an infiltration by leucocytes. Also the nerve cells of the motor areas of the cord and medulla showed a characteristic parenchymatous degeneration similar to what one finds in rabies. Two animals were inoculated with material from the

medulla of this child, one developed paralytic rabies in fourteen days, the second in twenty-one days. A microscopic study of the cord of one of these animals revealed the same pathological changes enumerated above.

There is consequently no doubt whatever, but that this child died of rabies, and we have unfortunately to record the first established death from this disease in the Province.

Since then, June 28th, the head of another dog has been sent to the Laboratory, suspected to have had rabies. The material was too much decomposed for microscopic examination, but three animals were inoculated, and up to the present time, twenty-one days after, they are alive and well. It is not possible yet to decide, as I have known the incubation period to extend over thirty days, and it is reported sometimes even longer than that.

This same year an outbreak occurred in London, Ontario, for the details of which I am indebted to Dr. Campbell, of the Local Board of Health, the facts as to this outbreak are as follows : We have thus the occurrence of some eight or nine outbreaks of this disease during the past six years. The death of one individual and the really serious expense of the treatment of some ten or twelve more, make it most important that your Board should take some definite steps in regard to the matter of prevention, with the possibility being strong of renewed occurrences of the disease in coming years, with these facts before it and the history of many outbreaks in foreign countries, some of which are referred to in the following paragraph.

"There can be no doubt, in spite of occasional failures, such as these, that the preventive treatment of Pasteur of persons bitten by rabid dogs is of the greatest value. This discovery should always be remembered as inaugurating a new departure in the treatment of zymotic diseases, and as a demonstration of an effective means by which thousands of human beings may be saved from suffering and an awful death.

In 1888 the number of persons bitten by dogs proved to be rabid, and who were inoculated at Paris, was 1,371. Among these the total mortality including those who came late and died during treatment, was 1.31 per cent. The mortality among all persons inoculated was 1.16 per cent. Up to 1891 the rate had been reduced below one per cent. Among these cases there were 280 cases of face-bites. Among persons bitten in the face and not inoculated, the mortality is 80 per cent., and among all persons bitten and not inoculated, the mortality is 15 per cent.

Antirabic institutes are now in operation in many countries. At Warsaw, in 1889, 146 patients were inoculated, and one died. At St. Petersburg, among 484 patients inoculated, the mortality was 2.68 per cent. At Odessa, when the simple method was used, 3.39 ; in 1887, with the intensive method, among 345 persons, 0.58 per cent. ; in 1888, among 364 persons, 0.64 per cent ; at Moscow, in 1887, 1.27 per cent, and at Turin, 1.88 per cent. At Constantinople, there were 34 persons up to November, 1888, with mortality nil : at Havana, 0.60, and at Bucharest, 244 persons, mortality nil. Thirty-nine persons bitten by the same animals refused treatment ; of these four at least died of the disease. In Hungary, in nearly three years, 552 were bitten ; 62 were inoculated and not one died ; 470 were not inoculated, and at least 44 died. In Italy, by Singi de Blasi, 343 were inoculated, mortality 1.17 ; by Celli, 109, mortality nil ; and by Baratier, 335, mortality, 0.59. At the New York Pasteur Institute, 686 persons were inoculated in five years up to January 1st, 1897, with mortality 0.58. Several of these patients were from Canada. The mortality among Canadian patients was nil.

Rabies which used to be very common in Berlin, has been completely stamped out by a law extending to the whole of Prussia, which provides that all dogs suspected of rabies shall be immediately killed, also all animals which have been bitten by rabid animals, and that all dogs in a district which has been infected by an outbreak of rabies shall be confined, or, when abroad both muzzled and led. No case had occurred in Berlin from 1883-1891. In Vienna rabies was entirely put an end to by rigid muzzling, but in 1886 the order was rescinded, and within a year the disease reappeared. Thereupon the muzzling order was put in force again, and is still maintained, (1891) so that the disease has vanished. In Sweden rabies was common, and from eight to ten persons died annually of hydrophobia. After the enforcement of muzzling and the prevention of importation of dogs, rabies declined, and no death from hydrophobia has occurred since 1870. The community of Mauritius has a similar history.

In England the mortality from rabies rapidly increased during thirty years up to 1891. The mortality during that period reached the high total of 939.

In the opinion of Professor Fleming, who read a paper on the propagation and prevention of rabies at the International Congress of Hygiene, in London 1891, the "United Kingdom can quickly and easily free itself from the disease, and keep itself free if it cares to do so ; and a heavy responsibility for the loss of human life rests upon those who oppose, or do not choose to adopt, the measures indicated. Continental nations with coterminous frontiers should combine in a simultaneous effort to abolish a scourge, which causes so much suffering to man and beast. Such a consummation can be realized ; it only needs the will to effect it."

In Professor Fleming's opinion, the suppressive sanitary public measures are in the order of their importance :

1. Destruction of all dogs which are rabid, or which are suspected of being of becoming rabid ;
2. The seizure, and if need be, destruction of all ownerless and wandering dogs ;
3. All other dogs to wear a properly constructed and wire muzzle, while rabies prevails, and also for a period equal to the longest interval of latency after the malady has been suppressed.

Utilizing the experience of other countries, your committee would suggest the adoption of regulations to be approved of by an Order-in-Council, if thought expedient, under section 13, cap. 205, R.S.O., 1897:

The following clauses for such regulations are submitted for your consideration :

1. Whenever any person has in his possession, or knows of, a rabid dog, or one which he suspects of being rabid, he shall notify the Local Board of Health or any officer thereof, or any constable or police officer of the fact, as of any other communicable disease.
2. The Local Board of any municipality, or any officer thereof, when informed of the existence of a rabid dog, or one suspected of being rabid, shall at once order the destruction of any rabid dog, and the isolation of any dog suspected of being rabid, by the owner on his own premises, or where this is not possible, then in such other manner as will protect the public until the suspicions of the Board shall have been verified or disproved.
3. Whenever any Local Board has a rabid dog, or one suspected of being rabid, within its municipality, it shall notify the Provincial Board of the fact, in order that steps may be taken to determine the character of the disease.

4. Every dog shall be deemed to have been exposed to the infection of rabies which has been in the same shed, stable, building, kennel, field or other place, or otherwise in contact with any diseased or suspected dog, or which has in any other way been exposed to the infection of rabies, and shall be dealt with as in the case of a suspected animal.

5. No person shall remove any animal isolated by the local board of health of any municipality as being rabid or suspected of rabies, without an order previously signed by the secretary of the local board of health in the municipality, and with the consent of the medical health officer, where such officer exists: or if none, then the secretary of the Provincial Board of Health.

6. The local board of health shall cause all stray dogs within their municipality to be seized and dealt with as a suspected animal during the three days following such seizure. In case the dog is not claimed within this period, the dog shall be treated either as rabid, and may be destroyed, or be treated as suspected of rabies at the option of the said local board of health or the medical health officer.

7. The carcase of any animal slaughtered under these regulations, shall be burned, or buried to the depth of not less than four feet and well covered with quick-lime.

8. The local board of health shall cause the disinfection of any building or other place where a rabid or suspected dog has been isolated by thoroughly washing the same with a solution of fresh milk of lime.

9. The local board of health, or any of its officers, shall have full and free access to any premises or buildings for the purposes of these regulations.

10. In every city, town and village, and in every township in Ontario, where an annual dog tax is levied, the owner of every dog shall be required to affix to a collar about his neck a metal tag supplied by the municipality, giving evidence of proper ownership.

11. On the appearance, or threatened appearance, of rabies, in any part of Ontario, the Provincial Board of Health may, with the consent of the Lieutenant-Governor-in-Council, issue a muzzling order under which the local boards of health of all the municipalities included within the district, whose extent and limits shall be defined in the order, shall require the muzzling of all dogs within their respective municipalities for such period as is set forth in the order.

12. The Provincial Board of Health may, whenever informed of the existence or supposed existence of a rabid dog within any municipality, take such steps as it may deem necessary in order to prove the existence of the disease, and may take, or cause to be taken, any action required under these regulations, or any other Public Health Act, to be taken by local board of health in case such local board has neglected or refused to take such action. (See sec 11, R.S.O.)

13. Whenever any person has been bitten by a rabid dog, or one supposed to be rabid, the local board of health of the municipality, wherein such person is, shall at once take such steps as will best serve to protect said person from the fatal effects of the bite. The same shall be done at the expense of the person himself, or of those responsible for his maintenance, and if not, then at the cost of the municipality wherein such person has residence. See sec. 84, R.S.O., 205.

14. With the consent of the person or his parent or guardian, the person bitten may be treated by the Pasteur, antirabic treatment for immunization against rabies, at such Pasteur Institute as may be under the control of the Provincial Board of Health, or such other as may be approved of by it.

The necessity for the adoption of prompt and effective action in the case of persons bitten by rabid dogs, in order to insure immunity against the disease, has been again and again set forth by all authorities on this subject. Without referring to the methods of immediate cauterization or removal by the knife of the injured tissue, which to be effective must be within fifteen minutes or less, after the bite, universal opinion goes to show that we can alone depend upon the Pasteur treatment for safety. The time lost in considering the question of sending patients to New York, as has been done, is productive of real danger to the person bitten while the expense of treatment has in some instances proved a barrier to action being taken by local boards, even when a life was at stake. Under such circumstances your committee deems it proper that your Board urge upon the Government that facilities be supplied whereby at a low cost to the individual or the municipality prompt treatment may be carried out in Ontario. If the cost of treatment of the persons already bitten during 1897 in Ontario be alone considered, it means that an expenditure of some \$300 or more must have been incurred for every patient sent to New York, or a total sum of not less than \$3,000 has been required to protect these persons against possible death from the most terrible of diseases. Not only, however, will the extension of the laboratory facilities of the Board supply the Province with this means of saving life, but the many other directions in which the Pasteur Institutes of other countries have developed experimental work in state medicine would similarly be followed out here.

Although it is true that the Provincial Board of Health since it instituted its laboratory work in 1890 has done something in directing and aiding local boards in the more accurate and scientific part of their work, yet it is plain that with small laboratory facilities and the services of but one person, as bacteriologist and chemist, the merest fringe of the work being done in many other countries, States and Provinces, is being touched.

In view of the facts which have been herein set forth, your committee would recommend in conclusion that the Board urge such action as will serve to extend its usefulness in the several directions which the public health interests of the Province demand.

All of which is respectfully submitted.

P. H. BRYCE,  
J. J. CASSIDY,  
J. D. MACDONALD.

#### NOTES.

##### REPORT UPON A SUSPECTED CASE OF RABIES IN A CHILD IN DUNDAS, ONT.

On Tuesday, June 1st. Dr. J. W. Smith sent to this laboratory the cerebellum and medulla of a boy, Jas. Mackenzie, aged ten years, who had died May 31st with symptoms pointing to rabies. The clinical history of the case, as well as the condition of the dog which bit the child is appended.

On the arrival of the specimen, which was in first class condition, portions of it were hardened for microscopic examination and a portion of the medulla was tuturated with sterile beef broth and used for infecting animals.

Two rabbits were inoculated in the anterior chamber of the left eye. Rabbit No. 1 developed symptoms of paralytic rabies, Monday, June 14th, and died Tuesday, June 15th. Incubation period thirteen days. Rabbit No. 2 developed symptoms of paralytic rabies on Friday, June 18th, and was killed in order to preserve material for microscopic examination and further inoculations; incubation period seventeen days.

A gross examination of the medulla of the boy showed hyperaemia in the region of the floor of the ventricle and small haemorrhages.

A microscopic examination showed inflammatory thickening of the smaller blood vessels and capillaries; capillary haemorrhages especially in the floor of the ventricle; parenchymatous degeneration of the nerve cells with marked pigmentation in some cells and a marked increase in the neuroglia elements in some localities.

All these results show conclusively that the case was one of rabies.

(Signed)

JOHN J. MACKENZIE,

Bacteriologist to the Provincial Board of Health

#### FOURTH QUARTERLY REPORT OF THE COMMITTEE ON EPIDEMICS.

TORONTO, Nov. 11, 1897.

*To the Chairman and Members of the Provincial Board of Health.*

GENTLEMEN.—The health of the Province during the last quarter has been marked, as that of the previous quarter, by a relative freedom from serious outbreaks of contagious disease. The smallpox cases imported into Toronto in the beginning of August resulted in no extension of the disease, and no cases resulting from exposure to these persons occurred either in Belleville or elsewhere.

*Scarlatina*, which became quiescent during the summer months, is making its appearance again in localized outbreaks, the mortality for the quarter as reported being .02 per 1,000 calculated on a per annum basis.

*Diphtheria* as usual with the autumn has appeared in a considerable number of municipalities, but it is gratifying to know that municipal boards of health and their officers are showing great promptness in limiting its spread. The small mortality is seen in the following table.

*Average deaths from diphtheria for the months of August, September and October, 1897:*

Cities .....	25
Towns .....	23
Townships .....	42
Total .....	90

Some of the localities with which correspondence has been had regarding its prevalence are Port Stanley, Picton, Douglas, Berlin, Essex Town, Fort William, Cambridge Township, Waterloo Township.

With regard to the methods for dealing promptly and effectively with the disease, the reports from the able chairman of the Berlin local board are of so much public interest and importance that a more extended reference to them may be made. As the correspondence shows, the local board had been uneasy at the continued cropping up of cases during the spring and summer months, without fortunately any great mortality. Your secretary was requested to visit Berlin early in September, and the situation was completely reviewed. Acting on his suggestions, the local board has since inaugurated a systematic method of dealing with the outbreak.

The details are briefly as follows:

1st. The sanitary inspectors and truant officer are required to visit every school (some ten) in the town every morning and obtain from the teachers the names of all absentees. Their homes are visited at once, and if there is any suspicion of sore throat the family are instructed to call in the family physician.

2nd. The list of suspicious cases is returned to the medical health officer at noon. The physician's report reaches him by the afternoon, and where none has been, he visits the suspected cases in person.

3rd. Where any suspicion of diphtheria exists, a swab is taken from the throat and forwarded to the laboratory of the Provincial Board of Health for examination. Quarantine of the suspected case is maintained till the results are telegraphed.

4th. Where diphtheria is shown to exist, the house and its inmates are strictly quarantined and placarded; no hospital being yet established.

5th. An isolation hospital of a permanent character is now being arranged for by Berlin and Waterloo jointly.

6th. All inmates of suspicious houses are of course kept from school.

7th. After the membrane has disappeared from the throat, a week's delay takes place, when swabs are again sent to prove freedom from the disease.

Mr. Mackenzie's report given as a part of this report, precisely states the results of this interesting series of examinations.

8th. When the examination proves freedom from the disease, the house is thoroughly disinfected by the new formaldehyde generator, and it is with extreme satisfaction that the chairman's report states, that not a single case has been traced to a house where the throat has been shown free from the disease, and has been thus fumigated.

To understand that the disease has become distributed in various centres of the town, it may be mentioned that what seemed a light outbreak, caused four deaths in October. That the length of time of infectiousness in some cases is lengthened, is shown not alone from these cases, but from an instance reported from Picton, where after four weeks' detention in the hospital, a child returned home and communicated the disease. Until this point becomes generally understood by parents and practitioners, we cannot expect either diphtheria or scarlatina to be stamped out, since we learn that scarlatina patients are not infrequently allowed abroad much under the minimum English period of five weeks isolation.

*Typhoid fever* has been reported as prevalent from but few districts. Doubtless the high ground water of the summer accounts for this in country places, but the fact of there being a number of reports from the several districts, and from towns and villages without public water supplies, again brings into prominence the dangers which are associated with wells exposed to animal pollutions, whether from privy vaults or barnyards. The monthly increasing number of specimens of blood from patients suffering from fever, sent to the laboratory for examination, again draws this Board's attention to the propriety of dealing with the problem of extended laboratory facilities.

The *Monthly Returns* continue to record the melancholy high death list from tuberculosis compared with other communicable diseases.

Your Secretary deems the subject of such overshadowing importance as to demand its treatment in a special paper, parts of which have been already made public.

All of which is respectfully submitted.

(Signed,) \_\_\_\_\_

P. H. BRYCE,

Chairman.

## REPORT OF THE COMMITTEE ON CONTAGIOUS DISEASES.

January 27th, 1898.

*To the Chairman and Members of the Provincial Board of Health:*

GENTLEMEN:—Your Committee begs leave to report that during the past quarter the Province has not suffered from the ravages of any serious outbreak of contagious disease.

*Small-pox* cases have in two instances been reported, one from Cambridge Township, in Russell County, and another near Callendar, in the Nipissing District. Investigation, however, has led to the conclusion that in both instances the cases were probably severe chicken-pox as no extension of the disease has occurred. There has been a remarkable immunity in Canada from this disease for a number of years past. Localized outbreaks are, however, reported from neighboring States during the past quarter, though none of serious extent.

*Scarlatina* is reported from several municipalities, but the deaths reported have been few. The following are the localities where deaths from the disease have appeared: Toronto 1, McNabb Township 1, Vienna Village 1, Yarmouth 1, Reach 1. Total, 5 deaths to the end of December.

*Diphtheria* has as usual during the winter season been reported from many municipalities. It has generally seemed to have had many mild cases as complaints have again and again been made that local boards and even medical health officers have assumed that the disease, which has evidently been very contagious in some instances, is nothing more than tonsillitis. The extension of the advantages taken of the laboratory of the Board in cases of this sort for the purposes of diagnosis, and later on for determining the freedom from the disease is very marked. Swabs have been forwarded from 39 different physicians from 27 different municipalities, exclusive of Berlin.

The report on cases examined continued from the last quarterly report will be given in the report of Mr. Mackenzie.

It is gratifying to learn from every part of the Province that physicians even in rural districts are increasingly making use of anti-toxine in outbreaks of the disease and that its curative effects seem now generally conceded. It is also satisfactory to note that a recent very complete testing of a bottle of the serum sold over the counter to a general practitioner in Toronto has proved that manufacturers are placing serums on the market of a high potency, and that the anti-toxine units are fully equal to the advertised strength. With a curative dose at the very moderate prices which commercial anti-toxine of assured potency can be had, there ought no longer to be any hesitation in its being promptly taken advantage of by the general practitioner or by local boards of health, even in the families of the poor where it may have to be supplied at the public expense. In the eyes of many experienced practitioners neglect to use anti-toxine can no longer be considered good medical practice.

Such figures as the following from recent Annual Reports give force to this view.

In the report of the State Board of Health of Massachusetts, to the end of May, 1897, a very full report is given of the manufacture of anti-toxine by the Board and the results of its use. The report states that the standard maintained by Dr. Theobold Smith under whom it is prepared at the Bussy Institute was 100 units per c.c. The anti-toxine sent out in 1896 doubled that sent out by

the Board in 1895. Some 3,245 bottles were sent out in 1896 or 35,000 c.c. of serum of 100 units strength. Of 189 cases fully reported to the Board which by culture had produced true diphtheria there were 22 deaths or 11.6 per cent.

Ages.	Cases.	Deaths.	Per cent. (fatally)
0-2.....	17	3	17.6
2-5.....	63	9	14.3
5-10.....	47	7	14.9
Over 10.....	60	3	5.0
Unknown .....	2	0	0.0
Day used.	Cases.	Deaths.	Per cent. (fatally)
1st.....	22	0	0
2nd.....	42	4	9.5
3rd.....	36	3	8.3
4th.....	22	5	22.7
5th.....	6	0	0
6th.....	7	1	14.3
7th.....	4	1	25.0
8th.....	6	1	16.0

Of 39 cases treated in hospitals there were 2 deaths or 5.1 per cent., private practice 150 cases 13.3 per cent. The report remarks what is observed here constantly in practice that the general run of cases treated with anti-toxine especially of those sent to hospitals are those in which the severe cases are notably greater than the average cases reported for the community as a whole. Of 136 cases injected within 24 hours there were but two deaths or 1.5 per cent.

#### Comparison of Mortality.

	Prior to introduction of anti-toxine.		Since introduction of anti-toxine, 1895-6-7.	
	Cases.	Per cent.	Cases.	Per cent.
German hospitals, (1883-1894).....	157,724	26.7	9,581	15.5
Massachusetts hospitals, (1891-94)....	13,332	28.3	989	11.8

#### Chicago statistics.

—	Total.	Recovered.	Died.	Death rate per cent.
1st day of disease .....	106	106	0	0.00
2nd " "	326	331	5	1.19
3rd " "	630	642	18	2.72
4th " "	269	231	38	14.12
Later than 4th day .....	97	64	33	34.02
Total .....	14,68	1,374	94	6.40

Percentage of recoveries in 1,468 cases of true diphtheria treated with anti-toxine 93 per cent.

*New York statistics.*

The use of anti-toxine has been greatly increased during 1896, there being 87 druggists distributing it by sale and free distribution.

Mortality of cases treated in New York treated by New York Health Department Jan 1st, 1895, to Oct. 1st, 1896 (page 315).

Total.....	1,252
(Mo'ibund or dying within 24 hours).....	80
Died .....	198
Mortality of bal.....	10.00

From these statistics we have an illustration of one of the many directions in which investigation of biological problems is advancing the public health of all progressive countries. How far this Board is to take a part in this great work must depend on the extent to which its facilities for routine work and investigation can be extended. That your Board should urge forward this work is illustrated by the amount of work which is shown to have been done in the Report of Mr. J. J. Mackenzie appended to this Report.

All of which is respectfully submitted.

(Signed)      J. D. MACDONALD,  
                  J. J. CASSIDY,  
                  P. H. BRYCE.

List of municipalities which have sent suspected diphtheria swabs during the year: Bondhead, Beaton, Berlin, Baden, Bloomfield, Brantford, Barrie, Baysville, Casselman, Claude, Carleton Place, Dunnville, Essex, Eglinton, Goderich, Guelph, Grand Valley, Kingsville, Lindsay, Mt. Forest, Minden, New Germany, Ottawa, Port Stanley, Port Elgin, Port Rowan, Parry Sound, Picton, Port Colborne, Rodney, Renfrew, Ridgeway, Richmond Hill, St. Thomas, Simcoe, Sebringville, Wallaceburg.

**LABORATORY REPORT ON STRENGTH OF DIPHTHERIA ANTI-TOXIN.**

BY J. J. MACKENZIE, B.A.

January 28, 1898.

*To the Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—I beg to report upon the result of a test which has been made during the past month upon Messrs. Parke Davis & Company's diphtheria anti-toxin. This firm has repeatedly requested that such a test should be made, but routine work in the laboratory has been so great that it has been impossible to get time until recently for its completion.

The sample tested was bought in the open market at a drug store, and the test applied was one to determine if the sample contained the number of anti-toxic units indicated by the label.

The label claimed that the bottle contained 1,000 units; the result of the test showed that it contained over 1,200 and under 1,500 units, probably nearer 1,500 than 1,200 units. This shows that the anti-toxin was reliable, as it is necessary to place in the bottle a good margin of units in excess of the label strength, so that the loss of units which takes place by keeping may not be so great as to bring it in a reasonable time below the amount indicated by the label.

Anti-toxins differ from other drugs in this respect that there is no danger from over dosing; the danger is rather the other way, and the rate of decrease in strength due to keeping is determined by factors which are largely not controlled by the manufacturer. I propose as soon as I can get a sufficient number of animals to carry out similar tests for other anti-toxins exposed for sale, and I have no reason to expect from the reliable character of the makers that they will not give good results; but this brings up the whole question as to the action of the Board in regard to the sale of anti-toxin in Ontario.

The testing of anti-toxin cannot be done without special apparatus and special training, and it is exceedingly important that some body such as your Board should be able to supervise and control the material for sale in the market, so that physicians should be able to feel certain of the strength of the anti-toxin which they use. As yet it is doubtful if there is any danger of weak anti-toxin being sent out by the manufacturers, but there is a danger of anti-toxin being kept too long in stock and consequently deteriorating. To avoid this, the makers of anti-toxins in America warn purchasers not to use old stock, and the date of testing is placed on the packages. They also offer to exchange old stock for fresh material, so that there is no excuse for a druggist selling material which has been kept too long. In Germany all anti-toxins as a matter of fact must be tested at the imperial test station before they are offered for sale, and this necessitates a test of one bottle from each lot obtained from a house. Such a test could not be made by us in Ontario, but a sufficient control could be kept of the supply by testing occasional samples bought in the open market, and publishing the results.

There is no doubt that the manufacturers would invite such a test, and it is possible that with the tests published there would not be any need of special regulations, at least at present. But if regulations were required, it would not be difficult to draw up some which would require the anti-toxin to be somewhat in excess of the label strength, as is required in Germany, and prohibit the sale of anti-toxin after a certain period had elapsed from the date of manufacture.

The undertaking of such control tests would be a serious addition to the work of the Board, and the only question which arises is the possibility of my being able to undertake it with the steady stream of routine work of the laboratory. To give you some idea of the work necessary to the test it will be perhaps as well to outline to you the methods which are adopted.

An anti-toxic unit is ten times the amount of anti-toxic serum which is necessary to mix with ten times the minimum fatal dose of diphtheria toxin, so that when this mixture is injected into a guinea-pig of 250 to 300 grammes weight the animal shows no evidence of poisoning from the toxin. In testing anti-toxin, the first step is to obtain a strong diphtheria toxin, and this is done by cultivating a virulent diphtheria bacillus in beef broth for a certain length of time and then filtering out the bacteria. The next step is to determine the strength of the toxin. This can only be done by direct inoculation of animals, and for this purpose guinea-pigs weighing 250 to 300 grammes are used as a standard. It usually takes a dozen animals at least to determine the minimum fatal dose, and it may take more. By the minimum fatal dose we have been in the habit of taking that dose of toxin which will kill animals of the standard weight in forty-six hours. Recently professor Ehrlich has shown that this is somewhat uncertain, and at the Berlin station they now take the dose which will kill in four to five days.

This M.F.D. determined, the next step in the process is to determine the amount of anti-toxin which will neutralize the action of ten times the M.F.D. This is done by mixing ten times the M.F.D. with varying doses of anti-toxin, and injecting the mixture into the guinea-pigs as near the standard weight as possible. For instance :—

Guinea pig, 300 grammes, 10 M.F.D. x 0.0005 c.c. anti-toxin, no change.

Guinea pig, 300 grammes, 10 M.F.D. x 0.0004 c.c. anti-toxin = oedema (swelling) at point of inoculation.

In such a test 0.0004 c.c. would not be sufficient, whilst 0.0005 would be sufficient. From this we would calculate that an anti-toxic unit of this serum would be 0.0005 c.c., i.e., 1-200 of a c.c. of the serum, which means that one c.c. would contain 200 anti-toxin units. Such a test requires, as you can see, quite a number of animals, because individual differences occur which have to be eliminated. It is a question whether, in reporting the results of such a test, it would be well to report the exact result, or to simply say that the test showed the sample to contain, say, over 1,000 units.

In Germany, of course, no report is made public, but the Imperial seal is not used unless it is sufficiently strong, and consequently it cannot be sold. But here it might be necessary to encourage the putting up of anti-toxin of a sufficient strength by publishing the exact strength of the test.

It must be remembered, however, that when we speak of exact results, we do not mean exact in the sense of a chemical test ; the test is not a chemical one, but a bacteriological one, and consequently is influenced by biological factors, such as the condition of nutrition of the animals, the surroundings so far as light, air and drainage are concerned, and other factors, such as the degree of inbreeding, etc., and in justice to the manufacturer it would not be fair to require that a test made in Toronto should be exactly compared with the results of a test made at the place of manufacture.

Looking to all these questions which I have brought forward, I leave the matter with you for discussion.

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#### REPORT OF SPECIAL COMMITTEE ON TRANSPORTATION OF THE DEAD.

January 27th, 1898.

*Mr. Chairman and Members of the Provincial Board of Health :*

GENTLEMEN: Your committee appointed at the last meeting of the Board, to deal with the question of the "Transportation of the Dead," begs leave to report that it has carefully enquired into the possibility of having action taken along the lines of the resolutions which were adopted at a conference held at Cleveland on June 9th, 1897, between the representatives of State Boards of Health, the Association of General Baggage Agents of the Railways, and of the Association of Undertakers and Embalmers.

After a full discussion of the difficulties now existing in the transportation of bodies dead of contagious diseases, owing to the different regulations existing in different states, and the desirability and practicability of the preparation of the bodies of such dead for transportation without danger to the public; a series of proposed regulations were unanimously adopted, which were referred to the several associations for approval or modification.

These regulations have been successively approved, almost without modification, by the International Conference of State and Provincial Boards of Health, held in Nashville on August 17th, 1897; by the American Public Health Association, which met in Philadelphia on October 26th, 1897; by the American Association of Baggage Agents, at the annual meeting in Denver, October 13th, 1897, and by the American and Canadian Undertakers' Associations, at their annual meetings.

The proposed regulations are those contained on the next page:

The points which are of special interest to this Board are those contained in Rules 2 and 3.

It will appear that the two diseases, diphtheria and scarlet fever, are placed in Rule 2 as diseases which after preparation in the manner set forth in the regulations, may be transported by train, instead of, as now in Ontario, requiring to be buried in a cemetery of the municipality where the death occurred.

In the report of the Cleveland conference herewith submitted, the various points are fully taken up and the views of your Secretary, who attended the conference, are given in full. From the discussion it is apparent that all were agreed that if any practical method could be devised whereby local boards of health and medical health officers could be assured that a body had been prepared by a thoroughly competent undertaker, there seemed no good reason why the wishes of the friends should not be complied with by having the corpse transported to the family burying-ground, in cases where the person had died away from home. It was pointed out by your Secretary, that in Ontario there is no law recognizing the existence of undertakers or embalmers as a body, and that in the absence of such, he was quite sure that this Board would not discuss the question, at present closed, of allowing the bodies of persons dead of diphtheria, for instance, to be prepared for transportation by any legally irresponsible person. In some places, as for instance Chicago, the local health authorities do recognize embalmers as a class, who under regulations are allowed to prepare bodies for transportation. The discussion of what was desirable or possible in different states, towards giving legal recognition to such bodies, made it apparent that all action must be relegated to the several state and provincial legislatures and boards of health individually. In view of the regulations of this Board being Orders-in-Council, it would seem possible for this Board, if it deems a change of the present regulations desirable, to adopt such modifications of the present regulations as the new conditions seem to demand, and to forward the same to the Government for approval. Your committee, acting upon the suggestions made at the last quarterly meeting of this Board, has endeavored to formulate the views then expressed, in the following clauses:

*Regulations of the Provincial Board of Health of Ontario, for the Transportation of the Dead (subject to approval).*

Rule 1.—The transportation of bodies dead of smallpox, Asiatic cholera, yellow fever, typhus fever or bubonic plague, is absolutely forbidden.

Rule 2.—The bodies of those who have died of diphtheria (membranous croup), scarlet fever (scarlatina, scarlet rash), glanders, anthrax, or leprosy, shall not be accepted for transportation unless prepared for shipment by being thoroughly disinfected by (a) arterial and cavity injection with an approved disinfectant fluid, (b) disinfecting and stopping of all orifices with absorbent cotton, and (c) washing the body with the disinfectant, all of which must be done by persons approved of by the Provincial Board of Health. After being disinfected as above, such

a body shall be enveloped in a layer of cotton not less than one inch thick, completely wrapped in a sheet and bandaged and encased in an air-tight zinc, tin, copper or lead lined coffin, or iron casket, all joints and seams hermetically soldered, and all enclosed in a strong tight wooden box. Or, the body being prepared for shipment by disinfecting and wrapping as above, may be placed in a strong coffin or casket, and said coffin or casket encased in an air-tight zinc, copper or tin case, all joints and seams hermetically soldered and all enclosed in a strong outside wooden box.

Rule 3.—The bodies of those dead of typhoid fever, puerperal fever, erysipelas, tuberculosis and measles, or other dangerous and communicable diseases, other than those specified in Rules 1 and 2 may be received for transportation when prepared for shipment by filling cavities with an approved disinfectant, washing the exterior of the body with the same, stopping all orifices with absorbent cotton, and enveloping the entire body with a layer of cotton not less than one inch thick, and all wrapped in a sheet and bandaged and encased in an air tight coffin or casket, provided, that this shall apply only to bodies which can reach their destination within forty-eight hours from time of death. In all other cases such bodies shall be prepared for transportation in conformity with Rule 2. But when the body has been prepared for shipment by being thoroughly disinfected by a person approved by the Provincial Board of Health as in Rule 2, the air-tight sealing may be dispensed with.

Rule 4.—The bodies of those dead of diseases that are not contagious, infectious or communicable, may be received for transportation when encased in a sound coffin or casket and enclosed in a strong outside wooden box; provided they reach their destination within thirty hours from time of death. If the body cannot reach its destination within thirty hours from time of death, it must be prepared for shipment by filling cavities with an approved disinfectant, washing the exterior of the body with the same, stopping all orifices with absorbent cotton and enveloping the entire body with a layer of cotton not less than one inch thick, and all wrapped in a sheet and bandaged, and encased in an air tight coffin or casket. But when the body has been prepared for shipment by being thoroughly disinfected by a person approved of by the Provincial Board of Health, the air-tight sealing may be dispensed with.

Rule 5.—In cases of contagious, infectious or communicable disease, the body must not be accompanied by persons or articles which have been exposed to the infection of the disease, unless certified by the proper officer as having been properly disinfected; and before selling passage tickets agents shall carefully examine the transit permit and note the name of the passenger in charge, and of any others proposing to accompany the body, and see that all necessary precautions have been taken to prevent the spread of disease. The transit permit in such cases shall specifically state who is authorized by the health authorities to accompany the remains. In all cases where bodies are forwarded under Rule No. 2, notice must be sent by telegraph to health officer at destination, advising the date and train by which the body may be expected. This notice must be sent by or in the name of the health officer at the initial point, and is to enable the health officer at destination to take all necessary precautions at that point.

Rule 6.—Every dead body must be accompanied by a person in charge, who must be provided with a passage ticket and also present a full first-class ticket marked "Corpse" for the transportation of the body, and a transit permit properly signed by the Division Registrar, as provided by the Registration Act, also undertaker's certificate, name of deceased, date and hour of death, age, place of death, cause of death, and if of a contagious, infectious, or communicable nature, the point to which the body is to be shipped, and when death is caused by any of the diseases specified in Rule No. 2, the names of those authorized by the health authorities to accompany the body. The transit permit must be made in duplicate, and the signature of the proper official must be on both the original and duplicate copies. The undertaker's certificate and pasteur of the *original* shall be detached from the transit permit and pasted on the coffin box. The transit permit shall be handed to the passenger in charge of the corpse. The whole duplicate copy shall be sent to the official in charge of the baggage department of the initial line, and by him to the secretary of the Provincial Board of Health of Ontario.

Rule 7.—When dead bodies are shipped by express the whole original transit permit shall be pasted upon the outside box and the duplicate forwarded by the express agent to the secretary of the Provincial Board of Health of Ontario.

Rule 8.—Every disinterred body, dead from any disease or cause, shall be treated as infectious or dangerous to the public health and shall not be accepted for transportation unless said removal has been approved by the provincial health authorities having jurisdiction where such body is disinterred, and the consent of the health authorities of the locality to which the corpse is consigned has first been obtained: all such disinterred remains shall be enclosed in a hermetically sealed (soldered) zinc, tin or copper lined coffin or box. Bodies deposited in receiving vaults shall be treated and considered the same as buried bodies.

While the several regulations adopted at the Cleveland conference are included above, it is apparent that only so far as contagious diseases are concerned would their adoption become possible under the provisions of section 13, sub-section 5, R.S.O. 1887, unless the first part of the section be held to cover interments in general.

The adoption of such regulations will promote uniformity of action, and if generally adopted, will prevent the many disagreeable and unfortunate delays in the transportation of dead bodies through different provinces and states, and in transference from one line of railway to another. With a view to giving effect to these regulations, your committee has attempted to give practical expression to the views of your Board as expressed at the last meeting. In order to insure proper care and preparation of the bodies of the dead, prior to transportation, it is proposed that for the purposes of these regulations, the seventeen divisions into which the Province of Ontario is divided, for returning representatives to the Ontario Medical Council, be adopted, as the units for which one or more certified persons may be appointed to carry out the foregoing regulations of the Provincial Board.

(a) These are :—

1. Essex, Kent, Lambton. (Chatham).
2. Elgin, Norfolk, Oxford. (St. Thomas).
3. Middlesex. (London).
4. Huron, Perth. (Stratford).
5. Waterloo, Wellington. (Guelph).
6. Bruce, Grey, Dufferin. (Walkerton).
7. Wentworth, Halton, Peel. (Hamilton).
8. Lincoln, Welland, Haldimand, Brant. (Brantford).
9. Simcoe, Muskoka, Parry Sound, Nipissing, Algoma, Manitoulin, Thunder Bay, and Rainy River. (Collingwood).
10. Toronto, East of Yonge St. (Toronto).
11. Toronto, West of Yonge St. (Toronto).
12. Ontario, Victoria, York, exclusive of Toronto. (Whitby or Cannington).
13. Northumberland, Peterborough, Durham, Haliburton. (Peterborough).
14. Prince Edward, Hastings, Lennox. (Belleville).
15. Frontenac, Addington, Renfrew, Lanark. (Kingston).
16. Leeds, Grenville, Dundas. (Brockville).
17. Carleton, Russell, Prescott, Glengarry, Stormont. (Ottawa).

(b) In order that persons certified may be fully qualified to carry out the regulations, your committee would suggest that examiners nominated by your Board be appointed, before whom candidates shall be notified to appear from the several divisions, and that in accordance with their standing on examination, they shall receive a certificate of qualification.

(c) In order that the greatest control may be practised in cases of dead bodies prepared for transportation, it is recommended that there be but one person named in each of the seventeen districts, who would be a resident in the district.

Remembering that the transportation of such bodies is now prohibited, it ought to be understood that the Board's adoption of these regulations is only with a view to meeting a sentiment which, whether unreasoning or not, is common amongst the people of this and the neighboring country, and not with a

view to the profit or convenience of any person. To make many appointments would be to lessen the safe-guards to the public; and that the work could not be a source of notable profit to any one, would appear when it is remembered, that there were but 925 deaths from diphtheria in 1896 in Ontario, of whom probably not more than one in twenty-five died away from home, or some thirty-five persons dead of this disease, would be prepared by such certificated persons annually.

It has further appeared desirable that such modification of the present rules regulating the transportation of the dead be adopted by this Board, to prevent the not infrequent dishonest and illegal efforts of interested persons to evade the law by giving and obtaining false certificates as to the cause of death, and by the fraud being completed by a public funeral.

(d) In order that the matter be properly regulated as regards expense, the Board would prepare a schedule in which would be included the cost of the travelling expenses, and of the preparation of the body for transportation; while at the same time a provision would be inserted in the regulations governing the appointment, whereby a disputed account could be taxed in the matter of costs.

(e) It would further be necessary to provide that a certified appointee could engage in work beyond his own electoral division only at the request of the appointee for such latter district, or in the case of the sickness or death of any appointee or in other emergency, the power to allow the passing from one district to another might rest with the Secretary of this Board.

Such in brief seem to be the principal points which demand consideration in the report of your committee. Should the report be approved of by the Board, and subsequently by the Government, the several details requiring further working out, could be dealt with again.

All of which is respectfully submitted,

P. H. BRYCE.

## MEDICO-LEGAL ASPECTS OF EMBALMING FLUIDS.

By J. J. CASSIDY, M.D., TORONTO.

January 26, 1898.

*To the Chairman and Members of the Provincial Board of Health :*

GENTLEMEN,—The composition of embalming fluid is likely to prove of interest to physicians, now that it is beginning to be mentioned in connection with trials for poisoning by arsenic. There are different kinds of embalming fluid. The following are two of the common formulae used in its preparation:

(1)	Arsenious Acid .....	6 drachms.
	Mercuric Chloride .....	10 drachms.
	Alcohol .....	9 ounces.
	Solution Carbolic, acid (five per cent., st.) .....	120 ounces.
	Red Aniline, (five per cent., q.s.) .....	Enough for coloring.
(2)	Pulverized Alum .....	5 lbs.
	Arsenious Acid .....	100 grains.
	Water .....	32 ounces.

Arterial embalming consists principally in the removal of blood from the vessels of the body, followed by the injection into an artery of a quantity of embalming fluid, sufficient to fill the arterial system. A limited form of embalming practised in a good many cases, consists in the introduction by the aid of a trocar and cannula, of a certain quantity of fluid into the thoracic or abdominal cavity, or into both of these cavities, the arterial injection not being attempted. In other cases the fluid is injected through the nostrils into the naso-pharynx, thus reaching the eyes, maxillary and frontal sinuses, and afterwards finding its way into the lungs and stomach.

When the arterial system is filled with an arsenical fluid, it follows of necessity, that arsenic will be introduced into the tissues of the stomach, liver, spleen, kidneys and other viscera. Assuming, then, that an individual has been done to death by arsenic, it would be in the interest of the murderer, that the corpse should be embalmed arterially with a fluid, such as one of the above, because, for obvious reasons, the subsequent discovery of arsenic in the viscera by a chemical expert, would be of no legal value in showing that arsenic had been administered with criminal intent, during the lifetime of the deceased. The proof that the deceased had been poisoned with arsenic, would then rest on evidence of the symptoms exhibited during the illness which preceded death, and the post-mortem appearances of the mucous membrane of the stomach and intestines.

Another important point is, that the majority of the undertakers do not know the composition of the embalming fluids used in their business, as they purchase these articles from jobbers, who keep the formulae secret. The arsenical fluids being cheap and reliable, are most used. Then there is nothing to excite suspicion in connection with embalming, which has in fact become quite common in Ontario. A good authority states that in cities and towns an average of sixty per cent. of the corpses of adults are prepared for sepulture in this fashion, in the well-settled country places, forty per cent.

These facts being known, it ought to follow that a fluid quite as effective for the embalmer's purpose and devoid of objectionable qualities from the legal standpoint, should be introduced. We understand that unobjectionable embalming fluids can be obtained at reasonable rates, and we have also been informed that such fluids are now used by Toronto undertakers.

At a joint meeting of Canadian and American executive officers of health boards, undertakers and baggage agents, held at Cleveland, Ohio, June, 1897—Mr. Hohenschuh, a prominent undertaker, stated that he had in every day use, for embalming purposes, a fluid which is cheap, readily used and wholly free from poisonous metals. This is a forty per cent. aqueous solution of formaldehyde, which is now commonly used by sanitary authorities for disinfecting purposes. As an evidence of the suitability of this agent for disinfecting purposes, Mr. Hohenschuh stated that the body of a sheep which had died of anthrax, and had subsequently been embalmed with formaldehyde, had been kept without offense for over two years.

This information is of sufficient importance to merit the attention of the Provincial Board of Health, and should Mr. Hohenschuh's statements be substantiated, it would be proper to advise the Provincial government to introduce legislation declaring the use of arsenical fluids in the embalming of dead bodies to be illegal.

As an evidence of good faith, the formulae of every embalming fluid used or sold in Ontario, should be sent to the Secretary of the Provincial Board of Health.

All of which is submitted,

TORONTO, February 5th, 1898.

(Signed)

J. J. CASSIDY, M.D.

## REPORT RE LONDON PACKING COMPANY NUISANCE.

TORONTO, January 26th, 1898.

*To the Chairman and Members of the Provincial Board of Health :*

GENTLEMEN,—Your committee to whom was delegated the duty of inspecting the establishment of the London Packing Co., in September last, reported at the last meeting of the Board that they had proceeded to Pottersville, London Township, and had taken evidence on September 14th, 1897; and further that in view of the verbal opinions then and subsequently expressed, regarding the method of removing the cause of further complaints, and the statement made in a letter by the Manager, Mr. Ginge, dated October 8th, 1897, that he was then taking steps to carry out the Board's expressed opinion, "that from an elevated tank, the effluent from the factory, might be pumped and then run by gravity to the lighter land of the field, there to be utilized as a sewage farm," your committee did not deem any more formal report necessary.

Inasmuch, however, as information has been received both from the Reeve of London Township and Mr. Shore, M.P.P., during the last month, that the company has as yet taken no action towards carrying out the proposed improvements, your committee does now beg leave to report:

1st. That it finds from personal investigation in both June and September, 1897, that the disposal of the waste effluent from the factory was not of a satisfactory nature, and that both an aerial nuisance exists, and that the creek was notably polluted below the factory.

2nd. That the sworn statements of different witnesses further give evidence that such conditions of nuisance are more or less constant, and that the then existing modes of disposing of the effluent from the factory were insufficient to prevent a recurrence from time to time of the nuisance.

3rd. That in the opinion of your committee, the abatement of the nuisance especially complained of, viz., the polluted waters of the creek, demands that the effluent wastes be discharged on a much larger area of land than at the present for filtration, and at a distance farther from the border of the stream.

4th. That in the opinion of your committee, the proposition contained in the letter of Mr. Ginge, the manager, will be a simple and efficient mode of abating the nuisance, provided that the land used is kept deeply ploughed and permeable to air, and that after every discharge into furrows, the furrows be turned over the wastes by which the absorption of the gases of putrefaction will be complete.

5th. While sub-soil drainage would increase the porosity of the soil and its ability to deal with the wastes, the necessity for this is a matter of detail depending upon the area of land used, and the amount of the daily sewage.

6th. That the beneficial effects of the utilization of sewage of the London Asylum, and the solid refuse from the packing factory daily hauled to the asylum gardens, leave your committee no room for doubt but that the cost of the disposal of the effluent wastes from the factory can be practically made up by the increased produce from the sewage farm.

7th. That in the opinion of your committee, the local board of health will now be justified in taking action as provided under section 64 of the Public Health Act, sub-section 2, in seeking an order of the court to compel the Canadian Packing Company to at once introduce such methods as will abate the nuisance.

All of which is respectfully submitted.

(Signed) J. D. MACDONALD, M.D.,  
E. E. KITCHEN, M.D.,  
P. H. BRYCE, M. D.

POTTERVILLE, September 14th, 1897.

Dr. Macdonald opened the investigation, re the Canadian Pork Packing Co., and stated the method of proceeding under the Public Health Act.

Dr. Bryce read the sections of the Act, 9-11, 59 and 64 relating to the taking of evidence.

The evidence taken was as follows :—

John Sleator, sworn, stated :—

I live on Governor's Road just in front of packing house. Have lived there 7 years. The packing house has been here in operation some 5 years. During this time, ever since starting the packing house, it has been a nuisance in spoiling the creek by polluting the water. Before the packing house was there the water of the creek was clean and nice, and I never had to carry water for my cow. There was no smell from it. Blood was put into the water and a sediment bed much like hog manure. I have seen it when tons of maggots could be shovelled out of it.

Some nights we cannot rest and must shut up windows on account of smell. Not so bad when wind is in opposite direction. It is worse on a damp night. It is not noticeable in winter except the rendering. This is not bad.

I am sure that the smell affects my health. The cow's feet stink, and the smell from this makes my wife sick. She has bronchitis and these smells make her sick and to cough.

I have to carry water which I had not before. I cannot say that the milk of the cow is affected, but I do not relish it so much. My cow will hardly take any salt if she drinks the creek water. I can swear that I have smelt the swill for two miles.

(Signed) JOHN SLEATOR.

Bernard Carlen, Sworn :—

I live opposite the packing house beside Mr. Sleator's. Have lived there six years : was there before the packing house for two summers. Since the packing house came, it is an awful nuisance. I keep two cows and a horse, and since the packing house came the water of the creek on my premises is not fit to use. The water after leaving the packing house comes on to my land first. Sometimes the water is thick with something like hog manure. The water is black as tar sometimes. The water smells, and if you put your hand in the smell is hard to get off. The cows stand in the creek and get the dirty water and mud on them. You cannot wash the smell off their bag. I cannot say that it affects the milk, but I cannot relish it. I sell some butter but the people did not like it, I believe, because people told my customers it was from near the packing house.

The smells are so bad some nights that we must shut doors and windows when the wind blows towards us, and we have no comfort in sleep. It is worse on a muggy damp night. I cannot say that it affects my health. I sometimes cannot bear to go out to the fields on account of the smell. I have two wells and only for these I could not get along at all. I lose much time pumping which would not be necessary if the creek were clean.

Q. Reeve : When the filter beds were in operation, was the creek so bad ? It was worse when it ran out of the beds. The smell is just as bad now or worse when the water is lying on the top of the ground.

(Signed) BERNARD X CARLEN.  
His  
Mark

James McLaren, Sworn :—

I live on south half of lot 7, concession C. The creek from the packing house runs through my farm, across whole farm. I have been on farm since 1862. From this time till the asylum drain into the creek, it was a fresh spring creek when there was a large flow of water. It was very seldom dry, the woods being more abundant there. When the asylum drained into the creek, sometimes at north part of farm there was a heavy smell in evening, but the water was nothing like as bad as now. After the asylum stopped draining the creek became clear again until the packing house started. The year it started, (1893), about July 15th, the water was first noticed bad by us, it being after a thunder storm. The water came down creek and full of dead fish. The springs in this place are enough to keep fish alive on the hills along creek. Hundreds of dead fish came down this year. About 16th of June when the creek is running and the factory going there are froth and soap bubbles. When this collects, in a short time the water gets discolored like manure. If allowed to stand and dry it smells like pig manure. This is not like blood.

Q. Reeve: Can you smell it when you take it up in hand? Yes. It accumulates where water crosses it and appears black, becomes slimy if stopped. I took once a tin pail of water, left it in an open shed; at end of a week this was loaded with maggots. The cattle go into the creek and stand and drink, then they come up and you can smell it on them if in the upper field. We keep the cows in the lower fields. We have not noticed this smell on the cows in the lower fields from legs and tails. We notice the smells at once if we go down to the creek in the evening. We have never tasted any flavor in butter or milk. I did not cease selling on account of complaint, but the man I sold to went out of the business. I have not cared to sell again till this nuisance was stopped. I do not know that it has affected the health of any of us unless my own, but if I am about the creek I soon lose my appetite.

(Signed) JAMES McLAREN.

Dr. John Gardiner, sworn :—

Am a medical practitioner living in London. Have been so for eighteen years. I remember when packing house was established on the Asylum or Ayr's creek during many years. Have known it since I came as being reported as more or less polluted from asylum sewage. I know that the asylum slop does not pollute it now. I have examined the creek each year since the packing house was established at the solicitation of neighbors.

The first year the water was colored and polluted as far as McLaren's fence, and I found dead fish and rotting, stinking water as far as this. It was colored deep and dark in Sleator's, Carlan and Wetters, but further down gradually lost this.

The next year I found it better; fish live in it below the Governor's Road about, say July. I attribute this to the attempt they had made to prevent the pollution of stream.

In 1896, the creek was still better, but still not as it should be. I examined it with Dr. Bryce in 1895, and saw the effluent still mingled with blood coloring, and it became terribly offensive in a bottle. It became offensive in stream in pools if left standing.

In 1897, I have not made such careful examinations as other years, except that to-day, I found the bed nearly dry, but when any water was in it, it is not usually so bad as it was then, nor yet as much refuse or crust on the dry bed of creek. There has been more water and there may not have been so much going into it.

With regard to the smell on first examination in first year, I could distinctly note the piggery smell at the asylum gate, and it got stronger near the piggery. I could trace this smell down the creek as far as Mr. McLaren's house, getting fainter as I went. Each summer this has been a little better. This summer I have often noticed the smell at some distance from the creek along the Governor's Road as I drove east. The piggery premises when I visited them, were always clean and in good order.

The filtering basins I have not considered adequate for the work cast on them. The reason is that the effluent is in a raw state, and could only act by means of a rest and not by chemical action and germ life, as the substance does not remain long enough in the beds for this to take place. Q. What will improve this? If beds are made large enough, and we leave effluent in them long enough, they would work; but they must be many times larger than now. As the out premises exist at present, they must be very offensive to those living in the immediate neighborhood, and might be a possible source of disease. Q. If the filter beds are deeper, would it be better? This would be worse. It must be carried away or burned. Q. Would you advise the remaking of the beds? No, I would not advise this as likely to prove adequate.

(Signed) J. H. GARDINER, M. D.

Dr. W. G. McNeill, sworn :—

Am Medical Health Officer of London Tp., resided in Arva for six years. Have been M.H.O. for six years. During these years I have had complaints made to me regarding Ayr's creek, and have examined it. In 1893, we examined the creek and found it intensely polluted just below the premises of the packing house. The creek was swarming with maggots, and for some distance below, along the creek I found it very much polluted. I examined creek above premises for some distance and found water pure and fish living. Below the factory fish were lying dead. This has been the state of things ever since pretty much, but not quite so bad. I attribute the pollution of creek and killing of fish to the foul matter escaping from the packing house.

In 1895, I sent sample of water to the Provincial Board of Health, taken from different points on creek, and retained duplicate samples which I examined and found swarming with bacteria from all points. Mr. Sleator, who resides near premises, stated that the milk and butter in his cellar were more or less polluted from the stench arising from the creek. I have no knowledge of this personally. I found the water above and away below in good condition—i.e., a mile or two below. I examined the premises of packing house and found everything within factory perfectly clean and sanitary; was never called upon to give an opinion regarding how to dispose of excrementitious matter and sewage.

The Provincial Board of Health were called in and advised a system of filtration. So far as I know, this system has never been properly constructed and carried out. They were not renewed or cleaned and consequently failed to perform the work. I consider the existing and past conditions a nuisance. Since we last met there on June 19th, without any order the packing house people have been discharging the sewage in the ice ponds which drain into the creek, thus polluting without any system of filtration whatever. Regarding the filter beds, if they had been properly constructed and renewed and drained, I think they would have done their work fairly well; but they have never been cared for as they might have been. I consider the Provincial Board of Health did its duty as well as possible, but the company failed to carry out their instructions.

(Signed) D. G. MCNEILL.

M. Larsen, sworn :—

Am foreman of Canadian Packing House Company. Have been so since April 6th, 1896. I am told to look after everything in factory outside and in. I have been absent sick for five weeks; began again only to-day. We kill twice a week, on an average about 900 hogs a week. We dispose of all offal to the asylum. We discharge floor washings into the field, after sweeping all the dirt, then wash down with water. The dirt and blood go to the asylum. We render fat and grease. The refuse from the vats goes to the asylum. The rendering vats are covered with screwed covers. Any waste from the vats goes down beside the ice pond along with floor washings, since about the 1st of July, except last Friday, when a tile was plugged, and the water there went into the bed near the factory and went to west side of ice pond.

When the water has been high this summer, we allowed the creek to run into the ice pond. When the water gets low, the water of pond runs out. There has been green stuff on creek since the 1st of July, although no sewage has gone in since then to creek. I swear to some water from ice-cellars drains to creek, but nothing else. This runs along the railway track. We built dam in stream to flood the ice pond, to get ice in winter—nothing else. I was not instructed to turn water on to the meadow out of the ditches. No complaints have been made to me of any nuisance during the summer. It is a five-acre lot east of the packing house.

Q. Could not this sewage be sent over to the asylum in tanks? This would be too expensive, as there will probably be over 3,000 barrels a week.

(Signed) M. LARSEN.

George Watts, sworn :—

I mostly work in the field at the packing house. I do anything there the foreman orders me. Have been at factory for three years. I helped to construct filter-beds on Dr. Gardiner's plan; did all as I was instructed. They had all the sewage up to the 1st July, 1897, and every time inspectors gave any new orders, they were carried out. No sewage has in my time been turned directly into creek. The water as it leaves tiles under beds is always clear, not colored.

We tried the sewage on the meadowland at the suggestion of the farmers Messrs. Carlen and Sleator, they thinking this would be better. Whenever a bed has been filled with sewage, and after it dries out, we rake off the sediment and dig them over with spade and let them dry good before using again. In this way one bed would rest about fourteen days. When a bed was filled it would empty in about two days and two nights. I think Mr. Gingé would be willing to do anything if it would satisfy complaints. In answer to question of Mr. Sleator, why he raked the creek below the packing house? If it was as he stated it was just to satisfy the complaints.

His  
(Signed)      GEORGE X WATTS.  
Mark

## REPORT *re* PROPOSED SOURCE OF PUBLIC WATER SUPPLY FOR TOWN OF PERTH.

*To the Chairman and Members of the Provincial Board of Health:*

GENTLEMEN,—According to the instructions to your committee on "Water Supplies" contained in a resolution adopted at the quarterly meeting in May last, the committee visited the Town of Perth on May 19th and inspected the proposed source of public water for the town. The committee of the town council, having this matter in hand, aided your committee in every way to obtain the fullest possible information on the subject.

As will be seen by the map herewith presented, the river Tay, the source of the proposed supply, takes its rise in a series of townships lying west and southwest of the town on the Laurentian rocks, and is first impounded some twenty miles above the town in Bob's lake, later as a feeder for the Rideau canal. Thereafter it forms a beautiful expansion of two or more miles in width, by several miles long in Christie's lake, some ten miles from Perth. Thence it flows between moderately high banks until Badaur's mill dam is reached, some five miles from the town. Thence the stream, after a fall of some fourteen feet, passes down, having an expansion in the large pond at Glen Tay mills where there is considerable shallow water over what at one time was drowned land.

Glen Tay consists of a large woolen mill and the houses of the work people. Some seventy hands are employed at the mill, and the privies are over the stream, which likewise receives the wash water from the scouring of the wool, much of which is foreign wool. The stream then flows down, with here and there a few acres of marsh land which is, however, well covered with vegetation.

A cheese factory is on the bank a mile or two from town, with its privy near the bank, but with no floor washings drained into the river. A few farm yards are near the bank, and some may have drainage running into the stream, but none at present to any great extent.

The water is soft as would be expected from its source, and has the following constitution (see p. 3) from analysis of samples taken:

- (1) At Christie's Lake.
- (2) Below the tail-race of Glen Tay mills.
- (3) At Matheson's dam, the proposed point from which water is to be taken.

The evidence obtained on all hands was to the effect that the stream maintains throughout the summer a flow of an even character, except for an occasional heavy rain, owing to the fact of the storage reservoir letting down the water assigned for purposes of navigation in the Rideau, as also to supply the power at

Glen Tay and the mills in Perth. The volume of water was not estimated but the current is rapid, and the supply will at all times be fresh and largely free from waters which have been stagnant. The analyses show the waters to be everywhere nearly the same in character.

It will be noticed, however, that the sample taken just below the woollen mills was taken at a time when no washings were passing down the stream, and it of course shows no contamination from such source. It is interesting to note that the organic materials, as shown by the free and albumenoid ammonia are somewhat less in the samples taken in Christie's lake, where the width of the lake largely reduces the rapidity of the current, and allows the organic material time to sediment. All of the samples, however, I am pleased to say indicate for dark waters coming off the Laurentian rocks, a high degree of freedom from organic matter.

No. 1. Proposed source (Matheson's bridge) :

Free ammonia .....	0.084.
Albumenoid ammonia .....	0.14.
Nitrogen as nitrites .....	None.
Chlorine .....	2.0.

No. 2. Below Glen Tay mills :

Free ammonia .....	0.084.
Albumenoid ammonia .....	0.14.
Nitrogen as nitrites .....	None.
Chlorine .....	2.0.

No. 3. Christie's lake :

Free ammonia .....	0.04.
Albumenoid ammonia .....	0.12.
Nitrogen as nitrites .....	None.
Chlorine .....	2.0.

(Signed)

J. J. MACKENZIE.

May 29th, 1897.

While on general principles it is most desirable from the sanitary standpoint to obtain water supplies from rivers as near as possible to their sources to prevent the dangers of increased polluting agencies, yet it would seem that in the present case there is no urgent sanitary reason why your Board should insist that the point of supply should be changed from that proposed, provided that the Town Council of Perth insure such supervision, directly or indirectly, of the stream above the point of intake, as shall effectually prevent pollution from animal matter.

Manifestly what is necessary before your Board can approve of the source of supply taken at the proposed point is that:

1st. The town cause such action to be taken as shall prevent the excreta from privies and the wool scourings from Glen Tay mills, or of houses, barnyards, cheese factories, etc., entering the stream above the source of supply, as they are empowered to under the General Waterworks Act, and under the Public Health Act.

2nd. Or that they make some new arrangement whereby the water can be piped down from above Badaur's dam which will greatly lessen the dangers of pollution and the necessity of supervision.

As it appears in the proposed agreement with the Charlebois Company that "The water is to be taken from the Tay river in the immediate vicinity of Matheson's upper bridge or above that point, with an intake pipe of sufficient capacity to supply the pumps and machinery and answer all requirements, while the company are to agree to protect from all contamination or fouling so that a supply of pure water shall always be provided," the essence of this portion of the contract would seem to be that the company must carry out such supervision in detail, and cause such things to be done as are indicated by this Board as a condition of its approval.

With the possibility of improving the character of the river supply by means of a mechanical pressure filter, which through the use of minute amounts of alum, will undoubtedly lessen the amount of organic matter in the water, the town may very properly insist on such, should the water at certain times or seasons prove to contain such an excess, in order, as the contract states, "that a supply of pure water shall always be provided by the municipality."

Your committee, therefore, would recommend that the proposed source of a public water supply for the Town of Perth to be taken from the river Tay at Matheson's bridge be approved of, subject to the following conditions :

1st. That the Town Council agrees to take such action as shall empower and require either its own town officials or officials of the Charlebois Water Company, acting as town officials, to take such action as shall prevent the river Tay from being polluted by the privy discharges and scouring waters of the Glen Tay mills; and shall cause to be removed any other sources of animal pollution of the stream above the source of supply as either exist or may from time to time be created.

2nd. That the Town Council agrees to maintain, or causes to be maintained, the water supply free of vegetable pollution to such an extent as will prevent the water from becoming unwholesome, by insisting upon its proper filtration whenever the state of the water may, in the opinion of this Board, make such filtration necessary.

All of which is respectfully submitted.

P. H. BRYCE, M.D.  
H. E. VAUX, M.D.

#### REPORT OF SECRETARY *RE STRATFORD WATERWORKS.*

TORONTO, Nov. 27th, 1897.

*To the Mayor and Board of Aldermen of the City of Stratford:*

GENTLEMEN,—Having been informed by the Mayor and members of the Fire, Water and Light Committee, that it is contemplated to purchase the works of the Company now supplying public water to Stratford, and having been invited by the mayor to examine into the existing condition of these works, I beg to say that I visited Stratford on November 23rd, and with the engineer went over the works, examined the plans showing the distribution of the water mains, hydrants, etc., and obtained data upon which I propose to present for the use of the Council this informal report. I present this as an informal and personal report, inasmuch as it would appear from the terms of the last clause of sub-section 4, of section 3,

of chapter 49, 58 Victoria (1895), that no formal action having as yet been taken by the city council to establish a municipal water works system, and no proposition having been laid before the Provincial Board for its approval, there does not appear to be at present any change in the health conditions of the town, due to the condition of the public water supply, which could authorize the Board to "make further enquiry and report," as to the public water supply of Stratford from the purely sanitary standpoint.

Inasmuch, however, as the city when it purchases the water works would have to submit them to the Provincial Board for approval, I desire to point out to the council, what would seem to be some essential improvements in the water as at present established.

I have learned that though the works have been in existence some fifteen years, there are but 491 services, of which only 202 are supplied to families, apart from the hotels and stores. If it be accepted that there are 2,000 families in 10,000 of a population, it will appear that not more than one-tenth of the people are receiving the advantages of a public water supply. The report of the medical health officer as to the cases of fever due to polluted well water, makes the necessity for extension of the service most evident. Incidentally this point may be illustrated by the city of Brantford with a safe and cheap water supply, having more than 2,000 services, and in the central part of the city, having even two years ago, one service to every five persons, although the works had been established but seven years. This difference I take to be due to the fact that the Brantford supply has been proved to be always bright and clean, of a constant standard of purity, and supplied at a cheap rate. It is hence productive of a large revenue for the city. Your engineer's figures supplied to me, fully indicate a notably larger price of the present supply to consumers than in other Ontario cities similarly situated; but I believe that a still greater reason for the less relative consumption, is due to the character of the water supplied.

Undoubtedly the water of the Avon, coming as it does wholly from springs, except in heavy periods of rain, is a natural supply of normal purity; but when the small size of the stream (a mere creek) is considered, and when its course, wholly through farm lands, where it is exposed to the surface drainage during floods and to the filth of cattle during seven months of the year, is remembered, it is apparent that since it is practically unfiltered, it exposes the people who use it to whatever dangers may arise from animal contamination. Even were there no practical dangers to be feared, yet the unprotected nature of the stream and its turbidity during wet periods must greatly affect its acceptability to many who otherwise would use it. The fact that notable revenues are obtained by the Company for its use for fire purposes, and for the railway shops, may doubtless be reasons why its improvement for domestic purposes is not regarded by the Company as necessary; but these seem to make the urgency all the greater for the city to obtain possession of the works for the general advantage of the citizens. While but indirectly a health question, yet inasmuch as very recent events have shown how intimately protection against fire becomes a public health question, since state and private aid is even now being supplied to sufferers from fire, and how privation and suffering tend to develop conditions favorable to disease, I deem it proper to point out what was observed by myself, and confirmed by the engineer, that the supply main to the pumping wells would prove wholly inadequate for any emergency demanding a sudden and continued large supply of water. The size of the pipes in many parts of the city are further inadequate for such an emergency.

Without dwelling further on these points, I deem it proper in conclusion to point out that it is urgently necessary that the city obtain possession of the water works for the following reasons:

1. That by proper filtration beds, mechanical filters or sub-surface galleries of perforated pipes, the naturally pure waters may always be supplied in a state of clearness and constant purity.
2. That proper steps may be taken for protecting the course of the stream against pollution with animal and vegetable matters.
3. That a supply reservoir may be constructed which will at all times be adequate for any fire emergency.
4. That the system may be extended throughout the town so as to be available to every householder, and thus make it possible to close all polluted wells.
5. That the price to consumers may be so reduced that its use will become general.

I have no opinion to offer as to what the works are worth, or as to the conditions which should be complied with for their purchase; but from what has been stated, it seems apparent that it is the duty of the city to become at the earliest possible moment, the possessor of the water works.

I have the honor to be,  
Your obedient servant,

P. H. BRYCE,  
Secretary of Provincial Board of Health.

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#### REPORT OF COMMITTEE ON SEWERAGE, *RE THE SEWERAGE SYSTEM OF PEMBROKE.*

*To the Chairman and Members of the Provincial Board of Health :*

GENTLEMEN,—Your committee on sewerage begs to present for consideration its report on the plans of the proposed sewerage system of Pembroke. Pembroke, a town of some 4,500, is beautifully situated on a porous soil on the River Ottawa, 100 miles above Ottawa City. From the map herewith presented it will appear that the town has three distinct drainage areas, owing to the Muskrat river emptying into the Ottawa from the south, while behind the town the Indian river flows eastward into the Muskrat. In almost every direction the soil slopes toward one or other of these natural drainage basins, and except along a small section of the business street, the level is such that a good fall is obtained for the sewers. On a number of streets indicated on the plans, sewers or drains, mostly of a private character, have been constructed in most cases of plank draining to the nearest stream. During the last several years a number of tile sewers have however been built. These have been constructed by, in each case, a number of citizens joining together as a syndicate; having an engineer prepare the plans and estimate the cost, and then submitting the scheme to the town council for its approval. The construction of these, generally speaking, is supposed to have followed the plan of sewerage laid down in the survey made by W. C. Brough, a Canadian engineer. While the levels of these seem to have been made suitable for their immediate necessities, yet the fact that they are really private sewers owned by a few men precludes their application to the needs of the ratepayers

generally on the sewer'd streets, except on such conditions as may be laid down by the owners. The town has not any power over them, does not require or guarantee their maintenance or repair, and has provided as yet no scheme by which the supervision of the house connections which have been mady or may hereafter be made, shall take place.

Under the circumstances just set forth, the Local Board of Health of the town passed the following resolution.

22nd May, 1897.

Moved by Mr. Bone, seconded by Mr. Martin, that the report prepared by Dr. Dickson, medical health officer of the town of Pembroke *re* sewerage be approved, and that he be authorized to forward same to the Provincial Board of Health, Toronto. Carried.

From the correspondence herewith submitted it will be seen that the Town Council did not for a time realize either that its immediate supervision of the sewerage of the town was demanded in the future interests of the sanitation of the town, inasmuch as no by-law had been passed for the supply of money for the construction. The intention of the amendment to section 30 of the Public Health Act of 1895, being to have all sewerage systems in our towns and cities approved of by your Board before construction was proceeded with, your committee, through the Secretary of the Board, visited Pembroke on the 11th inst. and met members of the local board, the sewerage committee of the council, the mayor, and the town engineer, and with them examined carefully the plans, the topography of the town, a sewer under construction and discussed the problem of how best to have the work proceed at present under construction, and likewise to provide for the future supervision of the sewers and the inspection of the house plumbing and sewer connections as well as to have some regular system for the payment for sewers adopted. All were agreed that the syndicate plan of building private sewers was but a temporary make-shift, owing to the inability at present of having a money-by-law carried for building a more complete system. The difficulties have been set forth in a supplementary report prepared by the town engineer which is presented herewith for your perusal.

From the specifications drawn up by Mr. Brough, which are herewith submitted together with the plans, it will be seen that if the present engineer's suggestions are adopted by the council a fairly satisfactory mode of procedure will have been instituted. It is apparent that the possibility of a general system consisting of a series of short sewers being made to the various rivers, for the town, under the application of what is now known as the local improvement plan of payment is applicable, under Sec. 597, of the Municipal Act, where it is provided that their construction may be proceeded with either (a) on petition of a sufficient number of ratepayers or (b) on sanitary grounds, upon a resolution from the local board of health being confirmed by a two-thirds majority of the town council. In this way not only payment for construction but supervision by the town is provided inasmuch as they are works owned by the town. Their maintenance is likewise ensured as well as the conditions under which house connections are to be made.

Your Committee therefore would recommend:

1st That the plans for the general sewerage of the town of Pembroke as set down in the plans of Mr. W. C. Brough be approved of with such modifications as the town engineer may at any time in the future deem necessary.

2nd. That all sewers at present under construction be carried out as a part of this plan, and under the supervision of the town engineer, subject to the

council or its sewerage committee and of the local board of health, in so far as the latter is required under the public health to see that the plumbing of houses is carried out along the principles laid down in that Act.

3rd. That the council shall adopt as the town plumbing by-law the model plumbing by-law adopted by the Provincial Board of Health in 1897 in place of the plumbing by-law at present in Schedule A., in so far as its provisions are more suited to the local conditions and more recent views on the subject.

4th. That it adopt some system, such as that set forth in the supplementary report of Mr. Morris, the town engineer, whereby the whole work of construction and future maintenance of the sewers will be placed under the supervision and control of the town engineer and such inspector or inspectors as may be approved of by him and the local board of health.

5th. That so long as the several streams referred to in this report be utilized for sewage disposal, that sewer outfalls be carried into deep water and so arranged as that local nuisance will be avoided.

6. That the future disposal of the sewage be subject to the general law relating to pollution of streams, and that the permission of this Board to utilize the streams for the disposal of sewage shall not in any way relieve the town of any responsibility which may at any future time arise from this method of disposal.

All of which is respectfully submitted.

P. H. BRYCE.  
E. E. KITCHEN.  
H. E. VAUX.

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TORONTO, July 20th, 1897.

DEAR SIR,—I beg to acknowledge receipt of your letter of the 13th inst. and to say that the sewerage plans for your town will be submitted to the Board for its consideration in a few days.

I have the honor to be,  
Your obedient servant,

P. H. BRYCE,  
Secretary.

J. L. MORRIS, Esq., C.E., Pembroke, Ont.

PEMBROKE, ONT., July 13th, 1897.

DR. BRYCE,

*Chairman of Provincial Board of Health, Toronto:*

DEAR SIR,—At your request, I make the following report with reference to the system under which the town of Pembroke is constructing certain sewers on Peter, Pembroke and Sydney Smith streets :—

Owing to the present financial position of the corporation, having just passed a bonus by-law for the sum of twenty thousand dollars towards the construction of the Pembroke Southern Ry., the possibility of the construction of a system of sewerage by a general rate is not at all likely for some years.

The construction of the above Peter street sewer by means of assessment on frontage did not meet with the approval of the majority of the freeholders. A minority of the freeholders interested made petition to the town council asking for the privilege of constructing sewers on Peter, Pembroke, Sydney Smith and William streets. The petition was granted, with the provisos that "All works shall hereafter be under the control of the corporation; that the work shall be under the superintendence of Mr. J. L. Morris, C.E., and that it shall be carried out as fully in accord with Mr. Brough's plan as practicable."

An understanding was between the council and petitioners to the refunding of the cost of each individual proportion to the petitioners. Having given the system under which we are at present constructing this sewer, consideration, I have found that there is much difficulty in arranging for the cost of entrance for others than the petitioners. There is a suspicion that the petitioners are constructing the sewer, not for the general benefit, but for the small gain.

Also, though constructing the main sewers in a satisfactory manner, there is no control over the house connections by the corporation in any way. By embodying in a resolution the following requirements, the town council could make the present system of construction a satisfactory means of securing a permanent and sanitary system of sewerage, viz.:—

(1) That all mains and branches on any street shall be in accord with the plan adopted by the council and accepted by the Provincial Board of Health.

(2) That the construction of all mains and branches shall be under the control of the corporation or a sewerage committee appointed by them.

(3) That the construction of all sewers and branches shall be under the supervision of a competent engineer, who shall appoint a competent inspector to inspect all work done.

(4) That any person with lands adjacent to the sewers shall be at liberty to connect his house sewerage and drainage on payment of a just proportion of the cost of mains and branches as determined by the petitioners.

(5) That the corporation cause to be passed "a plumbing by-law" to control the proper sanitary construction of all house connections.

(6) That the corporation appoint a competent inspector to carry out said by-law in conjunction with the supervising engineer and medical health officer of the local board of health.

(7) That the corporation will be responsible for all damages incurred by construction of said sewers.

(8) That the payment of supervising engineer and inspector be at the expense of the corporation, the supervising engineer to prepare proper records at the completion of any works.

(9) That on the construction of general system of sewerage by the corporation at any time hereafter, the petitioners shall have refunded to each a proportionate share of the cost of the sewer as determined by the corporation.

Yours respectfully,

J. L. MORRIS, C.E.

## REPORT OF COMMITTEE RE THE PROPOSED SYSTEM OF SEWERAGE FOR THE TOWN OF PERTH.

*To the Chairman and Members of the Provincial Board of Health :*

GENTLEMEN,—At the request of your Secretary I visited the town of Perth on May 31st, and inspected the route and outfall for their proposed system of sewerage.

The Town of Perth has a population of 3,800, and for the past few years has not grown to any appreciable extent.

For purposes of description it may be divided into three parts, east, west, and a central or inland portion, which is surrounded by the canal and part of the river Tay.

The proposal is to allow the sewage to empty into the canal by four outfalls at different points. Two of these outfalls are well within the town, but they serve so small an area—in one case the corner of a block (Willson and Harriett streets) and in the other a portion of the town not densely populated—that your Committee is of the opinion that they will be innocuous.

The two main sewers, one serving the east and the other the west, have their outfalls well below the residential part of the town. The canal is about sixty feet wide, flows at the rate of perhaps a mile and a half an hour, and has a constant depth of six feet of water.

As the town is about to introduce a system of water supply, it was thought to be a favorable opportunity, when the streets were open, to lay sewer pipes in the same trench. Whilst theoretically the method is perhaps open to objection, yet in the case of the Town of Perth it appears to be the only feasible method of accomplishing what has long been felt by them to be greatly needed. The exceedingly hard and abundant rock which underlies the town renders excavation very costly.

The system proposed is the separate, although provision is made to allow for the disposal of a considerable quantity of roof water. In some parts of the town cellar drainage is not provided for, owing to the shallow depth at which the pipes are laid, but as no separate pipe for this service is included in the estimates, it is perhaps as well from a sanitary point of view that the cellars should not be connected with the sewer pipes.

Some slight alterations as to outfall were made by your committee and favorably considered by the engineer, Mr. Keefer, of Ottawa, and from whom together with the mayor and officials of the town, your committee received every courtesy and attention.

All of which is respectfully submitted.

(Signed) HARRY E. VAUX.

June 3rd, 1897.

Your Committee begs further to report that in order that the Board may more clearly understand the dilution which will be given the sewage of the town of Perth after it is carried into the Tay canal your committee recalls the fact that there are to be four particular outfalls. While, of course, a nuisance might arise from sewage delivered at one point if there were insufficient dilution, it will be apparent that if the local sewage is divided into four parts that the dilution will be four times as great. However, the dilution in this case, where the river Tay supplies the canal with a depth of water of six feet by sixty feet in width and flowing at the rate of one and one-half miles per hour, will be very great indeed. Estimating a population of 6,000 with fifty gallons of sewage per diem, 250,000 gallons will be poured into the canal every twenty-four hours. The engineer, Mr. C. H. Keefer, of Ottawa, has supplied a measurement of flow made four miles above the town by Mr. J. C. Mignault, C.E., giving seventy-five cubic feet per second. With the above amount of sewage in twenty-four hours, there would be only one-quarter of a cubic foot per second, or one part of sewage to 600 of water, a very good degree of dilution indeed.

Regarding the danger from sewage pollution it may be said that the stream descends rapidly to the lake expansion, forming a part of the Rideau canal and that there are no users of the river water, as a village, to be affected below the town. With, therefore, the proviso that the town is to be prepared to meet any claims for damages which may at any future time be shown to be brought about by the disposal of the sewage of the town, and that the town will when instructed by this Board modify its method of sewage disposal in accordance with any suggestions the Provincial Board may make, your committee would recommend the approval of the proposed sewage outfalls into the canal and the plans for the sewerage of the town which have been submitted to it.

All of which is respectfully submitted,

(Signed) P. H. BRYCE,  
H. E. VAUX.

## REPORT RE MILTON CEMETERY.

BY P. H. BRYCE, M.D., SECRETARY.

November 11th, 1897.

*Mr. Chairman, and Members of the Provincial Board of Health:*

GENTLEMEN:—I beg to report that as provided under Sec. 489, of the Municipal Act, I visited the town of Milton and examined the site of the proposed extension of the town cemetery, permission for which had already been granted, subject to the terms of said section 489, by the town council and local board of health.

After my inspection of the proposed extension of the cemetery, a rough plan of which is herewith submitted, I forwarded the following letter to Mr. W. H. Lindsay, secretary of the Milton cemetery Co.

Toronto, June 1st, 1897.

Dear Sir.—In compliance with the request contained in your letter of May 6th, I would say that I visited Milton on May 25th, and in company with the representatives of the town council visited the present cemetery and investigated the fitness of the adjoining land as the site of the proposed extension of the cemetery.

It is almost needless to say that the location of the present cemetery is a most admirable one, not only because of its convenience of access for the townspeople, but still more because of its location practically outside the town. The only objection which might be raised is to the character of the soil in some parts as being clay. This defect may be largely overcome by thorough drainage in the manner suggested by me.

Under the amendment made to the Cemetery Act in the Session of 1897 of the Legislature, the power to enlarge cemeteries in towns has been given to cemetery companies, etc., and I have no hesitation in recommending to the Provincial Board of Health that it approve of the extension about to be made to the Milton cemetery. It will be well to have a small drawing made showing the position of the cemetery, the town, the river, etc., so that I can in a few words explain the relative position of the cemetery to the Board when it again meets.

As the approval is formal as required under the Act, and as I cannot conceive of any objections being raised by the Board to the proposed extension, I would advise that if the new ground be now required, the Company do at once proceed with the draining of the new land and laying it out in plots.

Trusting that this letter will be satisfactory to the Trustees,

I have the honor to be,  
Your obedient servant,

(Signed) P. H. BRYCE,  
Secretary.

Your Secretary would, in view of the facts set forth in the letter of June 1st, recommend the adoption of this, report, approving of the situation of the site for the extension of the burying-grounds of the Milton Cemetery Co.

All of which is respectfully submitted.

P. H. BRYCE,  
Secretary.

## HOME SANITATION IN RELATION TO CONSUMPTION.\*

ADDRESS BY P. H. BRYCE, M.A., M.D.

*Your Excellency, President and Members of the National Council of Women:*

LADIES AND GENTLEMEN,—I purpose in the few minutes at my disposal this evening to refer to a phase of a question which is of overshadowing importance to every public health officer, every patriotic citizen, and yet more to the great mass of the people themselves. I need not tell this audience that the question of how the great *white plague* is to be fought holds the first place in the work of every sanitary and benevolent association whose operations are within the great industrial centres in the populous countries of northern America and of Europe where its ravages have been described from the dawn of earliest history till now. Especially do I not need to explain to this Association, which has done so much in organization for the uplifting and bettering of the condition of their fellow-country women, that upon the thousands of workers in the dusty woollen and cotton factories, in the dress-making and sewing room, in the book-binderies, indeed in factories of every kind, this disease lays the heaviest hand, and that from this class, earning oft-times but little above the lowest living wage, the annual harvest cut by the reaper Death is richest and saddest. Neither do I need to give many statistics to prove that town dwellers, as compared with residents of the country, pay double the death penalty, and that for many it is a living death, where day after day with failing strength they labor on to earn the pittance which only serves to prolong the death agony.

This is not the place to discuss the commercial competition or the economic and social causes which produce these unfortunate conditions. Suffice it to say that since Canon Kingsley wrote "*Alton Locke*" and the German writer Frederick Engels described the condition of the English working classes in 1844, the factory system has been transplanted to the American continent, and that in the large cities, notably of the United States, it has developed, owing to the constant influx of the proletariat of every European country, unsanitary conditions as great as in those countries whence they have come.

In New York and Boston there die annually three out of every thousand people from this disease, and the authorities there have taken action lest the disease spread as fatally as a pestilence. Volumes have been written upon the dependence of consumption upon population density in London, Glasgow, and other great cities of Britain, but never has there been a more terrible illustration of what this density means than in a recently issued publication of the Health Department of New York City. A statistical study of the 4th ward of New York by the Health Department for the last three years has been made. I quote a few of the figures.

In 1896 there were 663 inhabited houses with a population of 18,323, or 27.6 to a house.

Houses infected 248, per cent. of whole 37.3.

Total cases 541 or 0.81 of one case for every house in the ward.

Cases per 1,000 in 1894.....	9.4
" " " 1895 .....	8.7
" " " 1896.....	11.2

—29.3 persons per 1,000 in three years

1st. The further statement is made that certain streets year after year have a proportionately greater number of houses infected.

\*Address delivered before National Council of Women, December 21st, 1897.

2nd. That the three years show no great increase in infected houses.

3rd. That of the infected houses the average of cases in each is 2.81 persons, or more than one in every ten of the average inmates of infected houses.

4th. That there were 70 houses in which three or more cases occurred and the cases in these houses increased year by year from 88 to 95 and to 119.

5th. That some of these have had as high as 8 and 11 cases per house in three years.

The Medical Inspector further remarks that such houses seem permanently infected and should either be renovated from top to bottom or torn down.

Several years ago I collated the deaths from consumption in three of the older Ontario counties for ten years and found that the same name occurred more than once in thirty-three per cent. of all cases and of these the average deaths for every name was 2.7. But I have again resorted to these records, and find in some of the newly settled and generally healthy counties, the same name occurring in the same or succeeding year and on further searching generally find from the father's name that such are children of the same family, or it may be a mother and son, or a daughter and mother. In certain cloistered sisterhoods in Germany this permanence of house infection has been fully illustrated by statistics. It is further seen in reports like that of the Massachusetts Board of Health that where the dense population of the towns have a mortality of 1,000 deaths from consumption there are not more comparatively than 725 in sparse districts, while it is further shown that though the highest mortality is between twenty and thirty years of age, the total death rate from this disease between fifteen and sixty years is some thirty per cent. of all deaths for the period, and of these the larger number are females.

I have thus briefly, ladies and gentlemen, set forth three most notable facts relating to the mortality and prevalence of consumption, these being :

1st. That consumption is a disease rather of the city than of the country.

2nd. That it is a disease directly associated with the density of population.

3rd. That it is a disease essentially of house life, and that it attaches itself with greatest persistency to particular houses, and naturally to particular families who occupy them year after year.

4th. That in our older settled counties, as in the cities, the number of infected houses slowly increases.

5th. That second and more cases are found in many instances to follow a first case in a house within a year or two.

6th. That in the centre of the worst infected districts of large cities some houses will year after year continue free from the disease.

If, then, we have before us facts of the greatest importance, we must, if we would learn the lessons they teach, see two points with perfect clearness.

1st. That the houses and work-rooms where consumptives live must be maintained sanitary, and that constant and thorough precautions must be taken with regard to the expectorations and emanations of the sick in them.

2nd. That the sick must be removed from such dwellings, often small, crowded and unclean, to other more sanitary surroundings if their recovery is to be hoped for.

I deem it a most fortunate and auspicious circumstance that to-night we have present representatives of three distinct organizations, all with one common thought and one single aim, viz., of bringing direct aid to the very class whose

condition I have described, both by relieving present needs and by devising new schemes and methods for preventing contagion and for supplying means of cure for persons attacked with this most fatal disease. Need I indicate what these three distinct organizations are? First, we have the scheme, fast becoming an organized fact, into which Her Excellency the Countess of Aberdeen has, with an enthusiasm peculiarly her own, thrown all her energies during the past year. Of course I refer to the Victorian Order of Nurses. Second, we have that other organization whose local society is so ably presided over by its present president. To this, as well, Lady Aberdeen has lent her time and energy. Third, and lastly, we have in the speaker the representative of that provincial organization, the Board of Health of Ontario, which the Government appointed fifteen years ago to study the causes and devise means for preventing or lessening the prevalence of the communicable diseases.

I desire to say a word or two regarding the distinctive objects of these several organizations, and something of the work which they have in common in dealing with consumption.

(a) The Victorian Order of Nurses is intended more especially to supply aid to persons actually sick and who, owing to limited means or accident of residence, are not able to avail themselves of the regular nurses. The nurses of the Order, so far as a large city is concerned, are to attend the sick at less than ordinary rates and in the case of the poor to give regular but intermittent service where such is found sufficient. Essentially their work is one of relief. It is fighting in the front of the battle. It is the aid to the wounded. It is heroic. It implies personal fatigue. It may involve serious individual danger. It is a work which appeals to our readiest sympathies. Wherever applicable and wherever demanded it ought to and must succeed. It is a charity!

(b) The National Council of Women is our second organization, and without entering fully into its various aims and works, I believe it may be most fitly termed a movement of reform. With the rapid development of our country, with cities springing up on every hand, with trade and commerce making amazing advances, with new industries, as mining, railways and shipping, life has taken on an intensity of action never before approached or imagined. Like our means of transit, men and women live at lightning speed. It is essentially an age of capitalizing, with all of good and evil which this may involve, of combination on the one side and competition on the other. In any case this new age of organized capital has developed conditions which must be met by corresponding combination in action to prevent the evils which inevitably tend to grow up along with such development. Trades-unionism and socialism in all their modifications have been the organized means in what seems a war between capital and labor.

But there is another movement, a Christian socialism, which this National Council of Women represents. It includes both remedial and preventive measures. It attacks the sweating system : it demands protection against child-labor and too long hours of labor. On the other hand it demands decent accommodation in shops, factories and work rooms : it desires to prevent the effects potent for evil from neglect of the children ; it insists that technical education of school girls in domestic arts be available for the working classes in our public schools. It attacks that immorality which obtrudes itself upon the public. Without being a censor of public morals, it insists on the right of every good citizen to protect himself and his family, by demanding a high standard of living and acting for the community of which he is an interested unit. Essentially the Council

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represents the moral sense of the women of Canada, taking its place in and stamping its impress upon all social movements which affect so intimately, the well-being and the happiness—indeed, the very existence of the sex.

As regards the purposes of the Provincial Board of Health, its duties as defined by statute are to collect and distribute sanitary information, and to study statistics of every kind relating to the public health of the Province. Further it is required to investigate the causes of disease, and notably to take steps both to suppress and prevent outbreaks of the same. It must thus be evident that such provisions lay upon the board duties of the most varied and extended character. Much has been done, and to-day the most pressing, the most important and withal the most difficult task it has to perform is the one I am discussing too briefly to-night, viz.: How shall the prevalence of consumption and the suffering, the deaths and the economic losses caused by tuberculosis be lessened and prevented? I am sure I am correct in saying that it is the Board's fixed determination to publish widely and constantly the facts of the great prevalence of this fatal disease; to point out the numerous physical, social and commercial causes tending to produce such prevalence; and to invite and encourage every citizen, every charitable association, every municipal body and finally every Government to unite and co-operate in a work which appeals to every one, who sympathizes with the afflicted and their friends who appreciates the economic and social losses due to its ravages, and who believe that this disease is but one of many, which experience has shown is capable of being cured, and still more easily prevented.

Such as I have described are some of the "aims and purposes" more or less distinctive of the three organizations to which I have referred.

I would now briefly endeavor to indicate some of the points toward which their several labors converge, or which indeed are common to all in dealing with tuberculosis, or if you prefer it, consumption.

From what has been so fully demonstrated, it is seen that consumption is essentially a house disease. As Deputy-Registrar-General, I am able year by year to obtain in town by town, and municipality by municipality the list of deaths due to this disease. Legislation too may be obtained enabling Boards of Health to have the existence of cases of the disease notified, as is now done in New York. But what then is to be done? Boards of Health cannot be expected to supply medical skill and nursing. They may, however, insist that workrooms and factories be clean, light and well ventilated. They have yet, however, no powers or facilities for dealing with cases, no hospitals or homes to which they can recommend them to go. At this point then, surely there is something for the Victorian Order of Nurses, the National Council of Women, indeed for every charitable association to do. The nurses may visit the afflicted, may teach them how imperative it is that they use daily every available means for dealing with their sputum, and lessening the dangers of infection to the other inmates of the household, and perhaps lend aid in other ways. They can supply information to the Health department with regard to the condition of houses as regards defective drainage and unsanitary surroundings. What more? They may perhaps obtain through charitable institutions as the Women's Council, or private persons charitably disposed, assistance whereby the sick can, in some instances, be removed during the early and curable stage of the disease to some rural part of the country or other scenes where better air and better food are more easily obtained. As matters exist at present, however, I do not see that they can do much more. Yet this would be something!

What can our National Council of Women do? They can by banding themselves into sanitary committees, as is done in large centres of England, as Leeds, or as is done by the Women's Protective Association of Philadelphia, take up the work of insisting on every kind of municipal sanitary reform. Our workshops, our factories, our bakeries, our milkshops are often most unsanitary. Again by steadily assisting the health authorities to create a public opinion in these matters which shall produce radical reforms. More than this, they may by actual slumming committees collect such an exact mass of information as will enable the health authorities to pass and enforce by-laws dealing with the many existing sanitary evils. Much may gradually be accomplished by perseverance along these lines.

But surely we must see that the practical value of all such aid as these two or any number of such organizations may give is handicapped at every stage by one dominating need.

Dr. Gilbert Smith, Chairman of the Committee of the Social Science Congress of England, said fifteen years ago that our ordinary hospitals are not the places for such chronic diseases as tuberculosis. It is sea-side and lake-side hospitals for the scrofulous children and "Homes" in the uplands for the tubercularized whether children or adults. The mournful story year by year comes from thousands of homes in the Province that home treatment of consumptives has been and is a failure, and this especially and notably in the houses of the working classes.

What do we find in Toronto? In 1896, of the 291 names taken in succession of those who died from consumption there were 184 deaths between 15 and 60 years, 16 classes of tradesmen and laborers were represented equalling 101 deaths, 53 housewives in every sphere in life, 10 other occupations and professions equalling 30 deaths. Returns, as the following, of the deaths in a single old town in one of our early settled counties gave out of 41 deaths from consumption occurring in eleven years 27 per cent. of the total deaths from consumption as occurring under four family names.

Of these there died of one family name, 1 in 1887.

1	"	1888.
1	"	1889.
2	"	1893.

Of these there died of one family name, 2 brothers in 1895.

"	"	"	"	2 sisters in 1886.
"	"	"	"	1 in 1889.
"	"	"	"	1 in 1896.

What can such do for themselves in the matter of cure, what is possible as regards protection of their families? How much more the dangers in the crowded houses of the city? There they cannot help themselves, and there moreover we cannot help them either. Only last month there died near my residence a carpenter who had been ill nine months, had never done a day's work, during the time and who had a family of eight children for months living in a house of but one or two rooms. What safety possible for them?

But, ladies and gentlemen, I need not relate such distressing examples. I assert, after fifteen years' experience, that there are but three plain lines of action for us.

1. Fight by all our combined energy to prevent, by education of the people and by legal enactment, every cause inducing ill-health and thereby consumption.

2 Remove the sources of immediate infection from the small and poorly-equipped homes and the factories and work-rooms of our working people

3. Build in every county *homes* for consumptives, to which in the early stages of the disease, they may go and by exact *regimen*, abundance of food, of fresh air, of sunshine, of exercise, of rest, and of sleep, maintain the fight against the destructive forces of the disease, have a fair chance of saving their lives to their families and the state, and at the same time remove the danger of infecting those they love.

You ask, How we shall accomplish this? Is it difficult when I tell you that we have to-day 45 subsidized hospitals in Ontario where there were but ten twenty years ago? That we have thirty-one orphanages where we had but thirteen twenty years ago? And that we have fourteen county homes for the aged poor where we had only one twenty years ago?

But we have more than this; we have a National Association of the noblest women of our country banded together with a motto, "Do unto others as ye would that others do unto you," with the highest lady in our land its president. More than this, we have this same lady lending her energies to this other nursing scheme, yet another evidence of the depth and breadth of her Christian philanthropy. Need I ask? Need I do more than suggest that once more whilst she is with us, Her Excellency will call together physicians, nurses, philanthropists by whatever name called, to organize and to ask that our state and municipal charity be extended to give us "*homes*" in every county which will aid in making our charity fruitful in practical life-saving as well as in smoothing the pillow and speaking words of hope and comfort to the dying; and by this signal act lay yet one more blessing upon us, who so long as womanly goodness and christian graces are honored in Canada, will make of her name a household word, a name engraven on the hearts of the people of our country.

Municipal sanitation has cut in two the mortality from typhoid and has banished smallpox during the past fifteen years. Shall it be said that Toronto, Ontario, Canada, will not during the next fifteen years have done as much with consumption?



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## PART III.

### REPORTS OF LOCAL BOARDS OF HEALTH

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# CITIES.

## BRANTFORD.

BRANTFORD, November 10th, 1897.

To the Chairman and Members of the Brantford Board of Health:

GENTLEMEN,—I beg to submit to you the annual report of the sanitary condition of the city for the year ending October 31st, 1897:—

*Mortuary Statistics*:—The number of deaths reported in the city for the year past, viz., from November 1st, 1896, to October 31st, 1897, was 294, which on a total population of 16,539 gives a death rate of 15.01 per thousand persons.

For the two preceding years the death rate has been as follows:—In 1895, 16.38, and in 1896, 13.88 per thousand.

The table below will give the monthly rate and a summary of causes:—

	Total deaths.	Typhoid fever.	Diphtheria and croup.	Diarrhoea and chol. infantum.	Measles.	Pneumonia.	Phthisis.	Under—		Over—	
								1 year.	5 years.	60 years.	80 years.
November.....	23	....	1	....	....	6	2	5	7	6	3
December.....	25	1	2 { 1 diph. } { 1 croup }	....	....	4	2	3	5	7	....
January.....	18	1	2	....	....	3	5	2	3	5	....
February.....	29	....	....	....	....	3	1	6	7	11	3
March.....	26	....	....	....	....	3	3	2	3	6	3
April.....	22	....	2 { 1 diph. } { 1 croup }	....	1	....	2	12	13	6	1
May.....	21	....	....	....	1	2	1	6	7	3	....
June.....	15	....	....	....	....	1	1	1	1	4	....
July.....	14	....	1	....	1	....	....	3	4	2	1
August.....	19	....	1	....	5	....	1	5	8	5	1
September.....	21	2	....	....	4	....	2	....	6	6	1
October.....	16	1	1 croup	....	....	....	3	2	2	6	2
<b>Totals.....</b>	<b>249</b>	<b>5</b>	<b>10</b>	<b>10</b>	<b>2</b>	<b>25</b>	<b>21</b>	<b>53</b>	<b>66</b>	<b>67</b>	<b>15</b>

*Contagious Diseases:*—The following contagious diseases have occurred in the city during the last twelve months, with the deaths in each case as shown by the following table:—

	Typhoid fever.		Diphtheria and croup.		Scarlatina.		Measles.		Others, as chicken-pox, etc.
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
November . . . . .	2	1	6	1	3	...	...	...	...
December . . . . .	2	1	10	2	1	...	...	...	...
January . . . . .	2	1	4	2	2	...	...	...	...
February . . . . .			4	...	5	...	...	...	1
March . . . . .			1	...	6	...	23	...	...
April . . . . .			3	2	...	...	13	1	...
May . . . . .					1	...	...	1	1
June . . . . .			1	...	12	...	...	...	...
July . . . . .	3	...	3	1	4	...	...	...	...
August . . . . .	3	...	2	1	1	...	...	...	1
September . . . . .	8	1	8	...	1	...	...	...	...
October . . . . .	13	1	5	1	3	...	...	...	(8 undecided cases.)
Totals . . . . .	31	4	42	10	39	...	36	2	11

Total number, 159 cases, 16 deaths.

*Typhoid Fever:*—The total number of cases reported from the city for the year was 31, occurring as the above table will indicate. This, compared with the number of the preceding year, gives a very pleasing decrease, for in 1896 there were 61 cases of typhoid, or almost twice that of 1897.

The cases have this year been in the majority of cases mild in type, although four deaths have resulted.

Out of the 31 cases reported, 7 were users of city water, 3 of both city and well water, and 21 well water users.

*City Water:*—As the water supply of a place is an important factor in the health of the population, and especially in the part it plays in regard to the spread of typhoid fever. So to know how we were situated in this matter, I had samples both of the city and well water sent to Prof. J. J. McKenzie, Provincial Bacteriologist, for examination, and have here to report the following, which gives us the probable reason of so few cases of typhoid in city water users as compared with well water users, for it fully demonstrates the superiority of the city over the well water as seen per report.

#### *Report on Water as per Examination of Prof. J. J. McKenzie, B.A., Toronto.*

Samples collected by Sanitary Inspector Wallace and myself in sterilized bottles, September 20th, 1897:—

#### *Bacteria per c. c.*

Canal above waterworks . . . . .	B. 1,750.
Canal at White mill . . . . .	B. 2,110.
Tap at pumping station . . . . .	B. 58.
Tap at health office . . . . .	B. 60.
Fountain at Victoria Park . . . . .	B. 72.
Cocker's well . . . . .	B. 7,850, suspicious.
Mrs. Lewis' well . . . . .	B. 74,200, B. Coli B.P.
Joseph Elliott's well . . . . .	B. 32,800, B. Coli B.P.

Cocker's well suspicious, Mrs. Lewis' and Jos. Elliott's well both condemned, having B. Coli and several colonies of B.P., which is always evidence of organic pollution.

*Diphtheria and Membranous Croup:*—During the last year there have been reported at the health office in all 42 cases, with 10 deaths.

The reports were as follows :—26 cases of diphtheria with 5 deaths ; 6 cases of membranous croup with 5 deaths.

Now, as upon a previous report, I have combined the above under the one head and speak of them as one, for as regards relation to public health I think they should be so considered, and advise that the resolution adopted by this Board at their last meeting be carried out as fully as possible, and that when a case occurs in a family, whether it be termed membrane croup or diphtheria, it should be reported at once the same as diphtheria, for if perchance there is a possibility of the membrane being one other than that produced by the true diphtheritic germ, there is also a greater possibility that it is due to the true diphtheritic deposit. And since the difference is one which the microscope can alone decide, then I deem that the safest plan is to report as above suggested.

*Scarlatina* :—Of this disease there occurred during the year 39 cases, with no deaths. The disease has at no time been epidemic and the only month in which there was any increase in the usual number was in June, when 12 cases were reported.

*Measles* :—There was a mild outbreak during the months of March and April, 26 cases with 2 deaths.

*Milk Supply* :—The number of dairies supplying the city is thirty. These are inspected twice a year by the Sanitary Inspector. The milk is tested periodically—once a month as nearly as possible—and any dairyman's milk which does not show 3.50 of butter fat has his license suspended until such standard is again maintained, the result has been that the average standard has been considerably increased, viz., 4.00 B. F. The following is the report for October :—

#### MILK TEST OCTOBER, 1897.

Date.	Name of Vendor.	Source of Supply.	Temp. Cent.	Sp. Gr.	Container.	Butter Fat.
Oct. 1....	Witham.....	John Witham .....	19°	10.30 5	Can.	3.60
" 1....	Dunson Bros..	— McEwan.....	19 5°	10.30 5	"	3.60
" 1....	Bowers Bros .....	— Crawford.....	20°	10.30 5	"	4.25
" 1....	T. S. Spencer.....	E. L. Jones.....	18.5°	10.32	Bottled.	4.80
" 1....	C. A. Kemp.....	Wm. Mumick.....	18.5°	10.30 5	"	4.00
" 1....	Beny & Son.....	Beny & Son.....	19.5°	10.31	Can.	4.75
" 1....	Passmore.....	Passmore .....	18°	10.31	Bottled.	4.00
" 1....	Steadman.....	Steadman.....	19°	10.31	Can.	3.50
" 1....	J. Willis .....	J. Willis .....	19°	10.30	"	4.00
" 1....	R. Porteus.....	R. Porteus .....	19.5°	10.31.5	"	3.50
" 1....	James Rolston.....	James Rolston.....	18.5°	10.30 5	Bottled.	4.20
" 1....	T. Beskett.....	T. Beskett.....	19°	10.31	"	4.00
" 1....	Wm Nellis.....	Greenwood .....	19.5°	10.32	Can.	3.20
" 1....	N. Foulds.....	Bow Park .....	00°	10.31	Bottled.	4.00
" 1....	W. Howard.....	W. Howard.....	19.5°	10.30 5	Can.	3.60
" 1....	John Cluff.....	— Agnew... .	19°	10.31.5	"	3.80
" 6....	James Lee.....	James Lee .....	18°	10.32	"	3.40
" 7....	Wm. Brittam.....	Wm. Brittam.....	12.5°	10.33	"	4.30
" 7....	Bowers Bros.....	Ker .....	12.5°	10.33	"	3.65
" 9....	Dundson Bros.....	W. D. Snyder.....	13.5°	10.34	"	4.20
" 9....	Hird.....	Hird.....	13.5°	10.32.5	"	5.00
" 9....	Wm. Creedmore.....	Wm. Creedmore.....	15.5°	10.31.5	"	4.00
" 9....	C. Kemp.....	C. Kemp.....	13.5°	10.31	"	4.65

The average B. F. is 4.00.

*Sanitary Inspector's Report* :—Besides the many special inspections arising from the reports of contagious diseases and numerous complaints there have been 500 house to house inspections during the last year.

There were 200 complaints made at the Health Office during the year, all of which were investigated and most of them satisfactorily disposed of, the nuisance being abated and in some cases fines were imposed.

One hundred and twelve wells have been ordered closed. Two hundred privy pits ordered cleaned and converted into dry earth closets or vaults.

The number of sewer connections in the city is 725, of which about one hundred have been made during the last year.

Now this brings me to the conclusion of my report, but there yet remains one thing which I wish to draw the attention of the Board to, and it is the necessity of a means of disposing of the garbage and house refuse from the decomposition, of which a great many complaints are made and from which frequently arise disease. I hope the Board will take some action in this matter and devise an efficient system for the removal of such.

(Sgd.) F. G. E. PEARSON,  
Medical Health Officer.

### CHATHAM.

*To the Chairman and Members of the Chatham Local Board of Health :*

GENTLEMEN :—I have the honor to submit for your examination my annual report for the year of 1897, commencing December 1st, 1896, and ending December 1st, 1897. There were 150 deaths reported during the year, as follows : December, 1896, 9 ; January, 1897, 10 ; February, 16 ; March, 12 ; April, 19 ; May, 8 ; June, 13 ; July, 10 ; August, 8 ; September, 10 ; October, 16 ; November, 19. Death rate 16.6 in 1,000.

Diphtheria :—One death resulted from this disease, being the only death resulting from contagious disease during the year. Thirty (30) cases were reported as follows : January, 2 ; February, 4 ; March, 2 ; May, 1 ; June, 2 ; August, 1 ; September, 4 ; October, 8 ; November, 6; total 30. Of these fifteen (15) were treated at the St. Joseph Hospital, two at the General Hospital and thirteen at their homes.

Three cases were of the laryngeal types. Diphtheria antitoxin was used in twenty-one cases, eight only requiring a second injection of the remedy. In two of the laryngeal cases three injections were given, and in one of these the injections were of two thousand (2,000 units strength. The amount and strength of the remedy being regulated by the intensity of the disease and urgency of the case, not by the age or size of the patient. The results obtained were uniformly good and apparently as certain as the results obtained from the use of morphine in quieting pain. This experience may be owing to the probable fact that the anginas which occur here accompanied by a membrane are caused by the presence of the true Klebs-Loeffler bacillus and not to the bacilli of staphylococci or streptococci, in proof of this all the cases submitted to bacteriological examination revealed the Klebs-Loeffler bacillus ; further in the laryngeal cases, the stenosis was gradual and progressive, not at all spasmotic, and the results from the use of the antitoxin were so positive and good while before its introduction the mortality was very high, even ninety per cent. When patients were unable to purchase the antitoxin it was furnished free by the city from the health office, three bottles of the remedy were furnished in this way during the year. It is a matter for regret and a cause of much unnecessary trouble and anxiety at times that we have not in the city any person whose duty it would be to examine membrane from all suspected cases of diphtheria, but hope the time will soon come when the county medical health officers will be appointed in accordance with the recommendation of Dr. P. H. Bryce, secretary of the Provincial Board of Health. The out-breaks occurred in each of nine months in the year, which is unusual here, some of the cases were easily traced to other cases outside the corporation, only three were traced to others in the city. These three deducted from twenty-one, the whole number of infected houses, leaves eighteen outbreaks of the disease. A careful study of these facts warrants the writer in saying the city is extremely fortunate in the results obtained.

Scarlet fever :—The disease was reported as follows : January 2nd, May 3rd, June 1st, September 1st, October 2nd, total nine cases. Three of these were treated at the Hospital. There were five distinct outbreaks of the disease and only in one case did any out-break spread from the original point of infection. In this disease the Isolation Hospital proved a valuable adjunct in controlling the disease where it would have been almost impossible to get perfect isolation in any other way. There were no deaths from this disease.

Isolation Hospitals :—We have two well equiped hospitals for the treatment of contagious diseases, one connected with the St. Joseph Hospital which has been in operation for several years and has done very much good, the other connected with the General Hospital has been open for patients about two months. In each of these institutions there are two large wards with all necessary apartments for nurses, equipments, etc. The good results obtained this year would not have been so good were it not for the hospitals. The Local Board of Health gave permission for them to receive patients from outside municipalities under certain conditions as to conveyance, permission, etc. In all thirty-four cases of diphtheria and two cases of scarlet fever were treated in these institutions, of these twenty were from the city and sixteen from adjoining municipalities.

*Typhoid fever* :—Eighty-five cases of this disease were reported as follows: January, 6, February, 3, March, 3, July, 4, August, 11, September, 17, October, 18, November, 23. Total number of infected patients, sixty-six, (66). Number of deaths 5 or 7.7 per cent. Out of these cases only six were reported to have used the city water supply exclusively and the causes assigned by attending physicians in these six cases were bad drainage and lack of sunlight, three (3). General debility one, (1). Contracted outside of the city, two, (2). The remaining seventy-nine, (79) were habitual users of well water, and although well water was not assigned as the cause by the physicians in attendance yet, it was strongly suspected in most of the cases. When we consider that seven hundred and sixty-two houses are supplied by the city water works, and one thousand and thirty-eight, (1,038) depend on well water, there seems a strong probability that well water is largely responsible for this disease. It seems evident that the city water did not cause the disease in the case of those using it though it may indirectly contribute to increasing the cases amongst those using well water. When city water is introduced into a house there must be some way of getting rid of the waste water, etc., and this is frequently done by tapping into an old box drain quite unfit for such use and after a time may pollute the ground, naturally the filtering bed of some well or wells. The natural inference from these considerations is that all suspicious wells should be closed as soon as practicable and the city water used in its place.

*Sewers* :—Thirteen new sewers were constructed under the provisions of the frontage by-law, making an addition to our sewerage system of eight thousand four hundred and forty-one feet.

*Dairies*.—Perhaps never before was Chatham supplied with so pure and good milk as at present. The dairies are all reported in very satisfactory condition. From a number of tests we learned that the milk furnished was well up to first-class standard. One dairyman had his herd of Jersey and Grade cows tested under the supervision of the office with the tuberculin test, they were all found free from tuberculosis. Four suspected cows from another herd were submitted to the test at my suggestion and proved healthy, two other cows were condemned, one on account of its emaciated condition, another because it had lump-jaw and were ordered slaughtered. Our system of licensing milk vendors makes it possible for us to lay down terms before granting a license for milk vending and an advantage to the vendor to comply with our terms.

WM. R. HALL.

#### GUELPH.

*To the Chairman and Members of the Local Board of Health :*

*GENTLEMEN*,—Herewith I have the honor to submit my report for the fiscal year ending the 31st of October, 1897 :

*Mortuary Statistics* :—One hundred and thirty-one deaths occurred within the limits of the city during the period, which gives (with our population of eleven thousand) a death rate per thousand of 11.9. Notwithstanding the low mortality, it should be remembered that we have within our boundaries two institutions to which the afflicted come for treatment from various distant places, many of whom are in a dying condition when they arrive. Of the whole number of deaths recorded, no less than seventeen were non-residents who belonged to this class. If we confine our report to citizens and exclude the above, our death rate falls to 10.2 per thousand. Tuberculosis accounted for 15.2 and cancerous growths for 7.6 per cent. of the total mortality. Many of the first mentioned and a large majority of the last were non-resident inmates of our hospital. Seven deaths were reported as still-born and six as due to infantile debility; all the latter died within twenty-four hours of birth.

On the whole the sanitary condition of the city was very satisfactory indeed. There is every reason to be thankful for the marked decrease in the number of cases of diphtheria during recent years compared with those in the beginning of the decade. For illustration, in 1890 no fewer than two hundred and twenty-one cases were reported, whereas the appended table below gives only twelve for 1897, and of these not one proved fatal. Isolation, guarding places of assembly, especially the schools, and, as regards the mortality, anti-toxin were factors of great importance in bringing about the change for the better.

Scarlet fever made its appearance at various times of the year and in different parts of the city. Owing to the fact that a long time had elapsed since it had been prevalent here, circumstances were favorable for it to become an epidemic of a serious character. This was fortunately prevented by the prompt manner in which the disease in each instance was recognized and reported by our physicians.

There were only four cases of typhoid fever, and of these three contracted the disease outside the limits. The almost entire freedom from it speaks loudly in favor of the purity of our water supply.

No other form of contagious disease existed. I append a table which shows the different contagious affections that occurred, the months in which they appeared and the mortality.

	Scarlet fever.	Deaths.	Diphtheria.	Deaths.	Typhoid fever.	Deaths.	Measles.	Deaths.	Other con- tagious diseases.
November .....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December .....	4	.....	4	.....	.....	.....	.....	.....	.....
January .....	6	1	3	.....	.....	.....	.....	.....	.....
March .....	1	.....	1	.....	.....	.....	.....	.....	.....
April .....	2	.....	.....	.....	1	.....	.....	.....	.....
May .....	3	.....	1	.....	.....	.....	.....	.....	.....
June .....	2	.....	2	.....	.....	.....	.....	.....	.....
July .....	1	.....	.....	.....	.....	.....	.....	.....	.....
August .....	.....	.....	.....	.....	2	1	.....	.....	.....
September .....	2	.....	1	.....	.....	1	1	.....	.....
October .....	1	.....	.....	.....	.....	.....	.....	.....	.....
Totals .....	22	1	12	.....	4	2	.....	.....	.....

*Milk Supply:*—At present it is not as it should be subjected to regular inspection. Milk being the chief article of diet required by our infant population, its purity should be placed beyond doubt. Some scheme should be devised or adopted by our Board of Health to secure effective results. To be efficient it will be necessary to prevent adulteration, to insure cleanliness, to see that the cows are properly fed and to render it impossible for any tubercular or diseased animal to gain admission to the dairies.

The meat supply also requires more attention than it receives from our health authorities.

I agree with those who maintain that when the milk and meat foods are rendered free from the products of tuberculous animals, consumption will cease to be a factor in the mortuary statistics of mankind.

Time and again attention has been called to the urgent necessity that exists for a proper system of sewerage for the city. The matter is an important one in regard to the future prosperity of Guelph in more respects than those relating to sanitary matters. Persons of wealth will not voluntarily come to a place that is behind the times and where modern conveniences are not obtainable. The Eramosa road, Huskisson and other streets are drained after a fashion that would not be tolerated by any well conducted municipality.

H. HOWITT,  
Medical Health Officer.

Amount of appropriation for Board for 1897.....	\$400 00
“ expended.....	399 13
Balance on hand .....	0.87

JAS. HEWARD,  
Chairman.

### KINGSTON.

KINGSTON, Dec. 31, 1898.

To the Chairman and Members of the Local Board of Health :

GENTLEMEN,—I beg leave to submit my annual report for the year ending 31st December, 1897 :

The total mortality of the city comprised 360 deaths. These figures include the number of deaths of persons registered as belonging to outside municipalities.

*Contagious Diseases:*—The number of contagious diseases reported was 115, viz.: Scarlet fever, 8; diphtheria, 84, occurring principally in the months of January, February and March; typhoid fever,

7 ; membranous croup, 6 ; and measles, 10. Generally all cases are quarantined by being sent to the hospitals for treatment. The homes of any that are not sent to these institutions are placarded until all danger is passed, as required by the statute, and a satisfactory certificate is given by the attending physician to the effect that the patient has recovered and that the dwelling has been properly disinfected. The death record for the year is : diphtheria, 7 ; typhoid fever, 4 ; consumption, 42 ; whooping cough, 4.

*The Work Done* :—To show that the city is moving in the right direction, practically it might be stated that during the year 8,000 feet of tile sewers were constructed as against 7,200 feet in 1896. The main reason why so many barrel sewers are being constructed is because the number of house water closets is increasing very rapidly, as a result of the desire for modern improvements. The scavengers, under the system inaugurated by the Board some years ago, however, are busily engaged during the specified season in emptying closets under the supervision of the Sanitary Inspector. I have no hesitation in saying that the good health of the city is in a great measure attributable to the very thorough manner in which this work is performed. The following table shows the work done during the year :

Cubic feet of night soil removed from privy vaults.....	25,000
Privy vaults inspected .....	2,625
"    "    reported clean.....	2,182
"    "    dirty .....	453
Yards and premises inspected .....	3,540
"    "    premises reported clean.....	3,189
"    "    dirty .....	351
Cellars inspected .....	3,067
"    "    reported clean .....	2,933
"    "    dirty or damp.....	134
Dead animals removed .....	143
Water closets reported in use .....	616
Dry earth closets inspected.....	331
Privy vaults filled up.....	35
"    "    shallowed to $2\frac{1}{2}$ feet.....	10
Permits issued to clean privies.....	454

The sanitary condition of the city received the usual amount of attention, and all complaints made to the department were promptly attended to. The work of inspection was done by sanitary police, who noted carefully the condition of the premises they examined.

Concerning sewage, the city council keeps making improvements. Either tile or large stone drains with cement bottoms have been substituted for defective ones, and all sewage is carried quickly to an outlet in the harbor, which is the best means now available for disposing of it. I trust that before long funds may be forthcoming for the construction of an intercepting sewer, which would prevent all danger of the river water being polluted.

Kingston has some of as fine school buildings as are in the province. Frontenac school, built last year, has no superior in Ontario with regard to accommodation, heating and ventilation. The school boards aim to have all their buildings kept in as good a sanitary condition as possible under the circumstances. Some of them are not all that could be desired. These, however, will receive attention just as soon as the necessary means for improving the accommodation can be conveniently provided.

*The Chairman's remarks* :—The chairman, Dr. Phelan, in giving his report for the year said : " Never in the history of Kingston has the health of the city been so good. While in other years contagious diseases swelled the long list, this year we have been comparatively free from them. Only a few years ago typhoid fever prevailed in so many districts of the city as to be almost epidemic, but the year just terminated has been marked by almost an immunity from the disease. This encouraging condition, I am pleased to state, was due not only to the cleanliness of the city, but also to the almost perfect state of the sewers, one mile and a half having been added this year to make the system as perfect as it is possible to make it at present. Added to this, Kingston can certainly boast of having a supply of good drinking water, which adds greatly to the health of the citizens. To cleanliness, good sewers, pure water, and the work of the ever vigilant health officer and sanitary inspector, who were always ready and willing to co-operate with the members of the Local Board of Health, may be attributed the good health which prevailed during the past year."

Very respectfully submitted,

SAMUEL H. FEE, M.D.,  
Medical Health Officer.

## LONDON.

LONDON, ONT., Nov. 15th.

*To the Chairman and Members Local Board of Health :*

GENTLEMEN,—I beg to lay before you the following report for the year ending November 15th. The number of deaths during the year was 456. Two hundred and sixteen cases of infectious diseases was reported, of which twenty-three proved fatal.

Classified, they were as follows : Diphtheria, 141, with twelve deaths. Typhoid fever, sixty-five, of which twelve died. Scarlet fever, twenty-two, and one death. Measles, six cases and no deaths. The Health Act requires all infectious diseases to be promptly reported. This has not been done in the case of measles, a large number not being reported at all. It is a popular belief that this disease is of no consequence, and that every child should have it. Of all cases mentioned, 137 were treated at the General Hospital, and twenty at St. Joseph's.

The mortality from diphtheria was very low, twelve deaths in 141 cases reported, which would seem to indicate that all these were not true diphtheria. It is very difficult, where no bacteriological examination is made of the exudate in the throat, to say in all cases what is diphtheria and what is not. At the same time it is proper, in the interest of the public health, that all suspicious cases should be reported, in order that they may be isolated and every precaution taken until a certain diagnosis can be made.

The increasing use, by medical men, of anti-toxine, no doubt has had much to do with reducing the number of deaths from this disease, and gives promise, ere long, of lowering the mortality still more. Scarlet fever was of a mild type, only one death occurring in twenty-two cases. There were nine cases of typhoid less than last year, although the deaths exceeded last year by six.

Cancer was the cause of twenty-three deaths, an increase of nine over last year. Notwithstanding, that more people come into the cities every year to avail themselves of hospital facilities, there are strong grounds for believing that this disease is increasing in Ontario. Taken by sexes, more females were attacked by infectious diseases than males. Consumption, as usual, carried off by far the largest number of people ; in fact, the mortality in this disease being equal to five or six of the others put together. Much could be done to reduce the death-rate from this cause if the public could be convinced of its infectious character, and, so far as possible, isolate all persons afflicted with the malady. The people should know that the two chief factors in spreading it are expectorating the tubercle containing the bacilli, or germs, which, if not immediately destroyed, dries, is then blown about by winds, and inhaled to start the disease afresh in healthy lungs. The other is the almost criminal folly of allowing tubercular persons to sleep with the healthy. It is in the power of every household to remove these two elements of danger.

A very satisfactory addition to the population was made during the year, which is now 36,224, an increase of 1,369 over last year. This does not include London West, which became part of the city on the 20th of December. The population, then, will not be far from forty thousand.

The death rate for the year was again low, being 12.1 for every 1,000 of the population.

Last year the city was authorized by a large majority of the ratepayers to borrow money and proceed with the construction of an enlarged system of sewerage, which was a sanitary measure of the first importance to London.

The system upon which these sewers are being constructed is the separate one, and although the initial cost is more, it is considered by all sanitary engineers to be the best. The system is in no way an experiment. It has been successfully operated in other cities and towns in the United States and Canada. These sewers are being constructed from plans made by the best engineers in the two countries. Several of the sections are now completed and it is expected the whole will be finished next year. No city in Canada will then have a better system of sewerage.

An effort was made again last year to have a plumbing by-law passed, so that an efficient plumbing inspector could be appointed by the City Council and paid by fees without putting the city to any additional expense. It was found, however, that the Council had not the power to do this. Legislation is now being obtained for the purpose, when it is hoped a competent plumbing inspector will be appointed, whose duty will be to see that no more wretched, go-as-you-please plumbing is put into dwellings.

Next to the need of an efficient system of plumbing is a public abattoir, where all animals, designed for food of man could be properly inspected before being slaughtered. This is the only

safe way, for meat unfit for food can be so nicely prepared for the market that it is almost impossible to detect it. Montreal and several other cities have public abattoirs, where qualified inspectors examine each animal before it is allowed to be slaughtered. The system is self supporting, a small fee being charged. The only cost to the municipality would be the erection of a suitable building, just outside the city limits.

There are now 155 milk vendors and 108 farms, making a total of 263 persons engaged in supplying the city with milk. Of the former, sixty-eight have no farms, but purchase what they retail from farms or country dairies. Upwards of 200 visits of inspection were made to the farms and dairies during the year, and 320 samples of milk, offered for sale, were examined. Of this number, two were found adulterated by the addition of water and six had cream added, the latter for purposes of publication. There is a steady improvement from year to year in the cleanliness and condition of the herds and dairies. This has not been accomplished without a great deal of trouble and unpleasantness. Milk enters so largely into the sustenance of infants and young children, that the importance of a pure and wholesome supply can hardly be overestimated, and the comparatively small number of deaths of infants and children in the city can be attributed to a purer supply of milk.

The provisions of the by-law restricting the sale of ice for domestic use to that obtained from the north branch above Blackfriars' bridge, have been complied with, ice taken from the cove being allowed to be sold for cooling purposes only.

During the year an unusually large number of dogs in the city showed symptoms of rabies, or in other words went mad, and several persons, mostly children, were bitten. Some of them were sent at the city's expense, to the Pasteur Institute in New York city, and some were not, those remaining at home, doing apparently as well as those sent to New York. It is quite probable that the Ontario Government will, ere long, establish in the Province a Pasteur Institute for the treatment of these cases, at much less expense than sending them to a foreign country. In England all dogs allowed out are compelled to be muzzled, which would seem to be the only way to do here.

Your Board has done wisely in adopting the new method of house disinfection, by means of formaldehyde gas, which is much more destructive to disease germs than many of the methods now in use. A suitable apparatus, designed for general apartment disinfecting can be purchased in Montreal for about \$24.

The report having referred to the infectious character of consumption, Prof. Bowman suggested that some means ought to be taken to impress the public with the fact, which is not generally known. The matter will probably be brought to the attention of the Board early next year.

The members of the Board made some inquiries as to the probable cause of the increase of cancer. As the origin of the disease is not very well known, but little light resulted from the discussion.

The Board expressed satisfaction at the fact that London is in such a healthy condition, being perhaps the healthiest city on the continent. This pleasing fact is no doubt due in a measure at least to the watchful care exercised over the city's health by the Board of Health. The death rate of this year over that of last year has increased, but very slightly. Last year the percentage was 11.1, this year it was 12.1.

Respectfully submitted,

T. F. HUTCHINSON, M.D.,  
Medical Health Officer.

OTTAWA.

*To the Chairman and Members of the Local Board of Health:—*

GENTLEMEN,—I beg to lay before you the annual report of the Health Department for the year ending November 31st, 1897.

In recording the fact that last year's death roll is considerably larger than that of the previous year, I merely bear evidence of the oft-repeated saying that a constantly changing temperature is not conducive to health. During the winter of 1896 and 1897, la grippe and its after effects were the principal factors of the increased mortality, which in the month of February last was almost double the usual rate from diseases of the respiratory organs, resulting largely, if not exclusively, from atmospheric influences.

The total mortality for the period comprised in this report, exclusive of still births, was 1,128. As shown on Table I., here appended. This, with our estimated population of 54,000, gives us a death rate of 20.88.

Five hundred and sixty-eight deaths out of the total mortality were of children of five years of age and under, including for the same period the mortuary records of the House of Bethlehem.

The chief factors of this large mortality among the young are pretty much always the same, the large majority succumbing to diarrhoea and other diseases incidental to dentition, especially during the summer season, and the smaller number becoming victims of such infectious diseases as diphtheria and scarlatina.

Among adults, tuberculosis in its various forms, and inflammatory diseases of the lungs and bronchial tubes, have during the past winter largely contributed to swell our death roll. It is no doubt true that a large number of the cases above named did develop from the evil effects of prevailing unhealthy atmospheric conditions last winter; but there seems to be some reason to suppose also that there has been more than a mere coincidence in the increased fatalities from pulmonary consumption during the past year; and the existence of tuberculosis among the cattle of a few dairy farms in the surrounding country supplying milk to the city. The highest figure in any previous year from this cause has been 95 deaths, whilst in the past year 125 deaths are recorded as having been caused by tuberculosis. As evidence that the hospitals for infectious diseases were kept in fairly good working order during the past year, I may state that 244 patients were received and treated there during the year, as is shown in Table II. here attached. Out of this number 31 cases were from the surrounding suburbs.

Thanks to the earnest and constant vigilance of the health authorities in the neighboring province, we have been spared a visitation of smallpox, an outbreak of which occurred there in July last. We may congratulate ourselves upon our good luck, for had our city been invaded by this loathsome disease, the accommodation in our isolation hospitals would have been found inadequate to cope with such an emergency. I deem it my duty to impress this fact upon the civic authorities, for in all likelihood we will not always be as fortunate as on the present occasion, so that they may realize the actual necessity there is to grapple with the Porter's Island problem. Then again the oft-repeated threats and onerous demands of the directorate of the Rideau street annex for infectious diseases must before long cause these authorities to squarely face this matter, and deal with it as best they can in the public interest. Whilst on this question of wants in a sanitary point of view, I wish to reiterate the fact that our city has now arrived at such proportions as to make the systematic collection of garbage an imperative necessity. The proper disposal of household refuse has been for some years past a source of much annoyance to a large portion of the community, especially during the summer season, and the sooner the authorities realize the actual necessity there is for a proper organization in this matter the better it will be for the public welfare and the credit of the city. The number of infectious diseases reported at the health office during the year are recorded in Table III. here attached.

I have still to complain of the laxity of physicians in reporting such cases as typhoid fever, measles, whooping-cough, and mumps.

The records of the House of Bethlehem for last year, as detailed in Table IV. here attached, show a very evident improvement in the percentage of lives saved as compared with previous years. This desirable result is no doubt largely due to better quarters, healthier locality and improved methods of treatment.

Last year's death rate from zymotic or so-called preventable diseases, as shown in comparative statement contained in Table V. here appended, compares favorably with that of previous years.

The ice supply of the city for household consumption is taken from the Ottawa river above the falls, and from the Gatineau river above the bridge opposite the village. The regulations of your board in relation thereto have been willingly complied with.

For all details of the work done in the sanitary department I beg to refer you the sanitary inspector's full report here appended.

In conclusion, I with pleasure acknowledge the valuable aid received from the sanitary inspector, Mr. McNeil, the two assistant inspectors, and the police force, in the discharge of the duties of this department.

Respectfully submitted,

A. ROBILLARD, M.D.

December 30th, 1897.

TABLE I.

Total mortality from all causes during the year 1897.

Diseases.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Anaemia .....	1			1							1		3
Abcess .....	2	3	1	2	1			1			1	1	3
Apoplexy .....				1				1	3				13
Astima .....				1									1
Alcoholism .....				1			1						2
By cars				3		1	2	1			1	1	12
burns .....									1			1	2
falls .....									2				3
run over .....											1		1
drowning .....				4			1	1	1	1	1	1	9
Bronchitis .....	4	6	8	11	4	5	3	2	3	2	1	2	51
Biliary calculi .....			1										2
Child birth .....				1				1					2
Compression of brain .....				1		1			1		1	1	5
Congestion of lungs .....	2	3	2	4	2	1	3		2	3	2	1	24
Cerebritis .....	3	1	1	1		1			1	2	2	1	13
Cystitis .....			1		1								2
Cancer .....	4			4	2	2	1		1	3	2	4	23
Cholera nostras .....	7	13	8	14	14	18	7	12	8	10	9	5	125
Consumption .....	4	4	6	4	4	2	6	3	1	2	2		38
Diphtheria (including				1									
Croup .....	1	1		1	1	1			1		1	3	10
Dropsy .....				1			1	1			3		6
Dysentery .....										1	2		3
Diarrhoeal and other diseases incidental to dentition .....	11	6	5	14	12	17	14	13	59	61	26	23	261
Erysipelas .....	1	..	1	3		1	1				2		9
Embolism .....				1							1		2
Emphysema .....			1										1
Diabetes .....		2			1	1	1	1					6
General debility, senile .....	1	1		2	4	4	1	2	3		1		20
" infantile .....	2	1	1	3	2	3	1	1	3	5	5	1	27
Gastro enteritis .....	1			1	2	2	2	7	10	3	6		34
Hydrocephalus .....		1	1		1				1	1			6
Hepatitis .....				3		1	1	1	1	1			9
Heart diseases .....	5	2	4	2	1	3	3	4	6	2	1	1	34
Heart failure .....	3			3	1	1	1	1	2				15
Intestinal obstruction .....											1		1
Malformation .....										1			1
Meningitis .....	2	4	4	2	2	2	1		2	2	5	3	29
Morbus Coxis .....	1						1						2
Myelitis .....						1							1
Insolation .....								3					3
Measles .....						1		1					2
Nephritis .....	3	2	6	3	1	3	1	1	1	2	3	3	28
Neurasthenia .....	1									1			2
Old age .....		2	4	5	3	3	1	2	3	1	1	2	27
Pneumonia .....	6	4	9	28	9	11	8	2	2		4	9	89
Paralysis .....	2	1	2	2			1	1	4	5	3		22
Peritonitis .....		2	1	3		3	2	2		1	1	2	17
Pleurisy .....		1									1		2
Premature births .....	3	4	8		4	4	2	2			2		29
Rheumatism .....					1		1	2					4
Scarlatina .....		1				2	1						4
Syphilis .....							1		1				2
Scrofula .....	1	1			2						1		5
Puerperal fever .....		1	1		1	1		1					5
Septicæmia .....	2				2	2				1	1	2	10
Spina Bifida .....									1	1			2
Suicide .....												1	1
Typhoid fever .....	1		2	1				1	1	2	6	4	18
Malignant tumors .....	1	1	1		1	1				1	2		7
Aæphyxia .....		2			3	1	1				1		9
Uræmia .....		1			2	3			2	1	1	1	12
Whooping cough .....									2	1	2		4
Aneurism .....		1											1
Totals .....	78	70	89	130	88	102	74	71	134	123	98	81	1,128

TABLE II.

Showing the number of patients treated in the hospitals for contagious diseases, and death rate during the year ending 31st October, 1897.

Distribution.	Protestant annex.				Roman Catholic annex.			
	Diphtheria.	Scarlet fever.	Measles.	Erysipelas.	Diphtheria.	Scarlet fever.	Measles.	Erysipelas.
Number in hospital 1st November, 1896.....	9	3	.....	.....	8	1	.....	.....
Admitted during the year.....	60	32	5	1	129	16	1	.....
Discharged .....	55	30	5	1	112	14	1	.....
Deaths.....	12	.....	.....	.....	17	2	.....	.....
Remaining in hospitals.....	2	5	.....	.....	8	1	.....	.....

It is but just that I should state here, in connection with the above table, that out of the total number of cases there treated thirty-one were from the surrounding suburbs outside of the city limits where they had originated, and that in many instances the cases were brought to the hospital in a moribund state, there to die a few hours after their admission.

TABLE III.

Showing number of cases of infectious diseases reported at the Health Office during the year 1897.

Diseases.	No. of cases.
Scarlatina.....	58
Diphtheria (including croup) .....	116
Measles.....	15
Typhoid fever.....	119
Total .....	388

TABLE IV.

Record of the House of Bethlehem for the year 1897.

How disposed of.	No. of cases.
Admitted during the year .....	223
Placed outside or returned to parents .....	91
Died during the year.....	105
Remaining in institution on 1st November, 1897 .....	27
Total .....	223

TABLE V.

Showing the death rate per thousand from zymotic diseases as compared with the total death rate from all causes in the City of Ottawa during the past eight years, as well as the present year 1897.

Year.	Population (estimated.)	Zymotic diseases.										Total zymotic.	Total all causes
		Smallpox.	Measles.	Group.	Scarlatina.	Diphtheria.	Typhoid fever.	Puerperal fever.	Diarrhoeal diseases.	Others.	No. of deaths.		
1889.....	40,000	13	19	5	59	18	2	188	17	321	7.40	983	22.86
1890.....	43,000	4	13	4	39	19	1	160	25	265	6.02	960	21.81
1891.....	44,000	6	14	24	30	9	3	203	21	310	6.88	908	20.17
1892.....	45,000	26	7	4	15	13	....	....	13	68	1.46	983	21.13
1893.....	46,500	5	6	5	17	16	3	158	29	239	4.97	892	18.58
1894.....	48,000	5	41	43	78	17	1	195	33	393	7.80	1,083	21.66
1895.....	50,000	9	15	33	80	15	2	249	....	403	7.75	1,083	20.82
1896.....	52,000	1	9	8	27	21	6	208	10	290	5.77	896	17.23
1897.....	54,000	2	10	4	38	18	5	211	12	300	5.55	1,128	20.88

#### ANNUAL REPORT OF THE SANITARY INSPECTOR, OTTAWA, FOR THE YEAR 1897.

To the Chairman and Members of the Board of Health :

GENTLEMEN,—I beg to submit for your consideration my annual report showing the work done in the Sanitary Department during the year 1897.

The following tables show the work done during the past year in so far as it can be put in such form.

TABLE I.

In this table the classification of nuisances show that your officials have not waited for complaints to perform an imperative duty. A thorough system of inspection has been carried out, and the examination of yards, cesspools, privies, drains, cellars, etc., has been rigidly enforced.

#### TABLES II. AND III.

Show the manner in which complaints and personal inspections have been dealt with, and the locations most requiring supervision.

In addition to the work shown in tabulated form there have been :

112 disinfected.

48 houses placarded.

36 houses tested for defects in plumbing.

10 Farmsteads were visited in respect to milk supply.

10 Summonses were issued against property owners for contraventions of the Health Laws, of which nine convictions are registered.

#### DUMPING GROUNDS.

The several dumping grounds have been well handled during the past year. It speaks well for the men employed at this disagreeable work that there has not been one complaint during the time specified.

## PLUMBING.

Another momentous question, almost solved by the trades unionists, but which nevertheless requires the serious consideration of your Board. (I have been charged in the public press with neglecting this most essential part of my statutory duties, but a careful examination of Table I, will, I think, convince your Board that I have not failed short in this respect).

## INSPECTION OF DAIRIES.

This important function has not been carried out systematically for some years past. Last March I visited ten farmsteads. With the exception that the proper storage of milk is not understood, the conditions were otherwise favorable.

TABLE I.

Classification of nuisances under notice of the Department during the year ending 30th October, 1897.

Description of nuisance.	By whom reported.					Total.
	Sanitary staff.	Tenants.	Neighbours.	Owners.	Others.	
Accumulation of water on streets, lots, etc ..	41	.....	13	.....	15	69
" of manure and other refuse ..	29	.....	10	2	.....	41
Cellars flooded and otherwise polluted ..	78	113	2	.....	9	202
Drains choked and otherwise defective ..	16	71	10	.....	.....	97
" box ..	8	3	.....	.....	.....	11
" none ..	27	16	3	5	.....	51
Dwellinghouses unfit for habitation ..	15	.....	.....	.....	.....	15
" dirty, etc ..	5	.....	.....	2	.....	7
" sewer gas escaping into ..	26	20	6	.....	.....	52
" illuminating gas escaping ..	1	7	.....	2	.....	10
Foul yards and premises ..	975	.....	294	17	100	1,386
Illuminating gas escaping on streets ..	3	.....	.....	.....	10	13
Privy vaults near dwellings and otherwise defective ..	24	17	11	.....	.....	52
" want of ..	1	1	.....	.....	.....	2
Pigs kept too near dwellings ..	1	.....	4	1	.....	6
Sinks untrapped ..	4	10	.....	.....	.....	14
" want of ..	1	2	.....	.....	.....	8
Soil-pipes, unventilated ..	4	3	.....	.....	.....	10
" defective ..	8	16	.....	3	.....	27
Waste-pipes, defective ..	12	13	1	.....	1	27
Water closets of defective construction ..	3	2	.....	.....	.....	5
Water-pipes burst, flooding cellars ..	4	4	.....	.....	.....	8
Want of water for domestic purposes ..	1	.....	.....	.....	.....	1
Miscellaneous ..	6	.....	.....	7	6	19
Total ..	1,296	298	354	36	144	2,128

## ST. CATHARINES.

## REPORT OF THE CHAIRMAN OF BOARD OF HEALTH.

To the Mayor and Council of the Corporation of the City of St. Catharines :—

GENTLEMEN,—In accordance with the requirements of the Public Health Act, I herewith submit my annual report of the sanitary condition of the city for the year ending the 15th day of November, 1897.

A fatal case of scarlatina occurred in the adjoining township of Grantham, just outside the western boundary of the corporation, early in the year, the disease having been contracted in Toronto. Owing to neglect on the part of the municipal authorities of the township, the infected house was not placarded and no steps were taken to isolate its inmates.

In consequence of this, the disease was communicated to some of the residents of the city. The disease was of a virulent type and two of the four persons affected succumbed.

At the request of the Board of Health, the public and separate school trustees closed the school, and the ecclesiastical authorities discontinued the Sunday schools until all danger of contagion had passed away.

The inmates of the infected premises were carefully isolated and the premises and their contents thoroughly disinfected by the sanitary inspector. In consequence of these precautions, the "plague was stayed."

The other cases of scarlatina reported were of an exceedingly mild type. The same may be said of nearly all the cases of diphtheria.

Complaint having been made by the health authorities of the village of Port Dalhousie that the sewage of St. Catharines, which found an outlet in the old Welland canal, below lock No. 2, was injuriously affecting the sanitary condition of the residents of that village, the chairman and secretary of the Provincial Board of Health, accompanied by the chairman of the Port Dalhousie Board of Health and some of the members of our own Board, made a thorough inspection of the outlet of the Welland Avenue sewer and of the city system of drainage generally.

These gentlemen, at a special meeting of the board called to receive their report and recommendation, unanimously expressed the opinion that the health of the residents of the village of Port Dalhousie was in nowise endangered from the outfall of the sewage of the city of St. Catharines into the Welland canal.

The sewers have been flushed and disinfected under the supervision of the sanitary inspector, but have not as yet been furnished by the city with automatic flushers which will be supplied, it is to be hoped, next year.

The sanitary inspector and secretary of the Board have always been prompt and attentive in the discharge of their respective duties, and have investigated all complaints made to the Board without unnecessary delay. Their reports are herewith submitted.

On consulting the accompanying report of the secretary, it will be observed that the total number of deaths from all causes occurring in the city from the 15th of November, 1896, to the 15th of November, 1897, was 161. Deducting from this number the deaths from old age, premature birth and accidents, twenty-eight in all, I find that the rate of mortality, calculated upon the basis of a population of 10,260, is 12.95 per 1,000 inhabitants.

The excellent sanitary condition of the city at present, leaves nothing to be desired, as it is entirely free from malarial affections and contagious diseases of an epidemic nature.

Respectfully submitted,

EDWIN GOODMAN, M. B.,  
Chairman.

ST. CATHARINES, 17th November, 1897.  

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To the Chairman and Local Board of Health of the City of St. Catharines:

GENTLEMEN.—Herewith I have the honor to submit the annual statement of the number of deaths in the city of St. Catharines from November 15th, 1896, to November 15th, 1897, and the causes thereof, also statement of the number of contagious diseases for the same period as per medical returns.

*Deaths.*

Disease.	Number.	Disease.	Number.
Shock from accident .....	1	Suppression of urine .....	1
Peritonitis .....	5	Heart disease .....	12
Consumption .....	13	Lung disease .....	2
Convulsions .....	3	Pneumonia .....	12
Nephritis .....	1	Calculus (vesical) .....	1
Abcess .....	1	Still born .....	14
Ruptured kidney .....	1	Lymphadenoma .....	1
Cardiac syncope .....	1	Bronchitis .....	5
Operation for cranial depression .....	1	Cardiac hypertrophy .....	1
Syphilis .....	1	Fibroid disease of womb .....	1
Meningitis .....	5	Albuminuria .....	1
Croup .....	1	Scarlet fever .....	2
Blood poisoning .....	1	Hæmorrhage .....	2
Diphtheria .....	2	Rheumatism and cystitis .....	1
Cancer .....	5	Paralysis .....	4
General debility .....	3	Influenza .....	3
Apoplexy .....	1	Burned .....	3
Old age .....	1	Brain disease .....	1
Not known .....	1	Drowned .....	1
Tuberculosis .....	4	Gangrene .....	2
Premature birth .....	2	Congestion of stomach .....	1
Erysipelas and puerperal insanity .....	1	Typhoid fever .....	3
Alcoholism .....	1	Bright's disease .....	2
Marasmus .....	3	Accident .....	3
Cholera infantum .....	3	Acute intestinal indigestion .....	1
Empyema .....	1	Progressive muscular atrophy .....	1
Senile decay .....	2	Inanition .....	1
Diarrhœa .....	1	Acute intestinal obstruction .....	1
Enteritis .....	2	Tetanus .....	1
Anæmia .....	1	Gastritis .....	2
Pyaemia .....	1	Shock following operation for pyo salpinx .....	1
Acute hepatitis .....	1	Splenic leukæmia .....	1
Liver disease .....	1		
Tumor .....	1	Total .....	161

*Contagious Diseases.*

Reported.	Number.	Deaths.	Number.
Scarlet fever .....	41	Diphtheria .....	2
Typhoid fever .....	2	Scarlet fever .....	2
Diphtheria .....	13		
Measles .....	3		
Total .....	59	Total .....	4

I have the honor to be,  
Your obedient servant,

J. ROLLISON,  
City Clerk.

St. Catharines, 17th November, 1897.

To the Chairman and Local Board of Health of the City of St. Catharines :

GENTLEMEN.—I have the honor herewith to submit my annual report (as Sanitary Inspector to your honorable body), for the year ending November 15th, 1897, and say :

That I have placarded forty-five houses during the year, in compliance with the medical returns of contagious diseases.

I have frequently visited the cow-byres, slaughter houses, livery and hotel stables, canning and other factories within the city when necessary, and have generally found them in a cleanly condition.

The city sewers have been frequently flushed during the season, and have been disinfected when necessary.

The streets, lanes and yards have received strict attention, and I am pleased to say that they have been kept clean generally.

The city scavengers have removed about 900 barrels of night soil during the year.

I have tested the milk sold by the vendors thereof, and the average registration has been 90 and 92.

I have made 1,050 house to house inspections during the year, and am pleased to say that I was kindly received by all persons in connection therewith who showed a willingness to comply with all orders and instructions in regard to sanitation.

I have made weekly visits to our City Sanitary Hospital during the year, and have pleasuree in saying that the said institution is in good order and condition, and ready for use should necessity require it at any time.

Respectfully submitted,

A. BOULDEN,  
Sanitary Inspector.

St. Catharines, November 17th, 1897.

### HAMILTON.

To the Chairman and Members of the Local Board of Health :

GENTLEMEN.—I beg to present my annual report for the year ending 31st October, 1897. It is pleasing to be able to make the following statements :

Burials in Hamilton Cemetery were 43 less than in the previous year, the total being 546 ; of this number 419 were citizens, 98 non-residents, and 29 still-born, two of the latter did not appear in the cemetery reports.

One hundred and six citizens were buried in Holy Sepulchre Cemetery, being 14 less than in last year, also 7 still-born.

Citizens of all creeds removed to other places of interment number 75, showing an increase of 10 over last year, also 2 still-born.

The total citizen mortality was 600—males 320 and females 260 ; this shows a decrease of 55 deaths compared with the mortality of 1896.

If we take the population at 50,000, which has been done for the last two or three years, the rate of mortality per 1,000 will be 12. Taking the assessors' figures at 50,600 it will be about 11.85 per 1,000.

Nine citizens died while absent from the city ; 20 deaths were reported as due to accident, 3 of which occurred to non-residents, and 5 cases were reported as suicides.

Deaths of children under one year of age were somewhat less, being 124, and due to the usual causes ; 2 cases, however, were from accidental smothering.

Deaths under 5 years were as follows :

Under 1 year .....	124
Between 1 and 2 .....	26
"    2 and 3 .....	8
"    3 and 4 .....	6
"    4 and 5 .....	10
Total .....	174

Citizens were reported as having died at the following institutions, viz.:

House of Refuge .....	8
City Hospital .....	63
(4 of which were reported from the House of Refuge.)	
Aged Women's Home .....	1
Home of the Friendless.....	9
Jail .....	1
St. Joseph's Hospital.....	11

Twelve non-residents died in the city.

Seven hundred and thirty-four cases of contagious diseases were registered at the health office, of these 62 were cases of diphtheria (1 more than last year), 203 cases of scarlet fever, mostly of a mild type, this shows an increase of 156 over last report; typhoid fever cases number 41, being 78 less than last year.

The other contagious diseases are generally inaccurate in numbers, owing to many of them being of so mild a type as not to require a physician's aid. I think, however, that it would be advisable in every case to have diseases diagnosed by a physician. These cases not reported undoubtedly spread disease. The cases reported were:

Measles .....	24
Chickenpox .....	105
Mumps .....	252
Whooping-cough .....	47

The totals show a decrease of 303 cases, compared with last year's report.

Deaths from diphtheria number 14, being 5 more than in 1896. One might expect to have a decrease in mortality from this disease owing to the wonderful influence anti-toxine is said to have over it.

There were four deaths from scarlet fever, and five from typhoid fever.

Respectfully submitted,

(Signed)

I. RYALL,  
Medical Health Officer.

P.S.—Report of work done is shown in Sanitary Inspector Peacock's report.

CITY HALL, November 1st, 1897.

To DR. RYALL,  
Medical Health Officer.

SIR,—Please find below synopsis of work done by your three inspectors collectively for the year commencing November 1st, 1896, and ending October 31st, 1897.

Yours respectfully,

(Signed)

J. PEACOCK,  
Sanitary Inspector.

Number of inspections made .....	13,351
"    privy vaults notified to be cleaned.....	1,709
"    "    permits granted for new ones .....	84
"    "    cleaned out by contractors .....	1,828
"    "    abolished .....	67
"    cesspools notified to be cleaned .....	8
"    "    cleaned out by contractors.....	20
"    dry earth closets notified to be cleaned.....	29
"    sewer connections notified to be made .....	10
"    "    found defective and notified.....	139
"    foul drains notified to abolish .....	34
"    stagnant water " .....	27

Number of old wells to fill in .....	11
"    houses placarded for infectious diseases .....	205
"    "    fumigated after infection.....	204
"    complaints made at office and not well founded .....	42

*Scavenger work* done by the four contractors for the removal of garbage and refuse, including ashes, from each house in the city weekly to the various dumps was—

Number of full loads collected and delivered at dumps..... 6,926

*Burnt at Crematory*—

Number of dogs .....	87
"    cats .....	104
"    fowl .....	61
"    lots of fish and meat.....	6
"    rabbits .....	22
"    loads of rags, etc., from the hospital.....	51

Number of dogs, cats, etc., buried by Mr. McBride, 209.

Yours respectfully,  
(Signed)

J. PEACOCK,  
Inspector.

The markets have been regularly inspected by your inspector who reports that the quality of the meats offered for sale have been fully up to the average. Some very fine samples of fruit have been on sale, but of the finer kinds a great quantity of those offered have been culls or seconds. The larger fruit growers presumably finding a better market for their first quality. Apples generally are of poor quality.

Yours respectfully,

J. PEACOCK,  
Inspector.

This report is the aggregate of each monthly statement reported at monthly meetings of the Board of Health.

(Signed) I. RYALL.

ST. THOMAS.

COUNTY OF ELGIN, ONT.

*To the Chairman and Members of the Local Board of Health :*

I beg leave to lay before you the report of our sanitary condition from the 30th of November, 1896, till the 30th of November, 1897, showing the number of contagious diseases and the death rate as follows :

Diphtheria, about 100 cases, with a mortality of (15) fifteen.

Scarlet fever, 10 cases and no deaths.

Measels, 3 cases and no deaths,

Consumption, 10 deaths. As we do not placard consumption we are not aware of the number of cases in the city. Typhoid fever, 1 case and no deaths. All other non-contagious diseases, still-born, etc., making a total death rate of 160, or 14.5 per 1,000 in a population of over 11,000.

The city is now in a healthy condition. The sanitary work of cleaning privies, back yards, alleyways, cellars, and street sweeping have been attended to satisfactorily from the time the frost disappeared to the present. It has not been made compulsory to establish dry or water-closets instead of the privy pit system ; but as we have at present sixteen and one-half (16½) miles of sewers in fairly good working order, we expect soon to be able to report that every street has been sewerized. We will then gradually require persons residing in the populous part of the city to put in sewer connections.

Our system of sewers is so arranged that all mains and branches convey the sewage into a common trunk, thus enabling, when necessary, to establish a sewer farm, to be used at least during the season of drought, or to adopt some chemical system of deodorizing and disinfecting.

Our streets are fast becoming macadamized on sodded boulevards, so that no water will be allowed to remain on the surface, causing noisome ponds.

We have at present a system of waterworks that is more than self-sustaining. Formerly wells were used, but owing to the nature of the soil, and an impervious claybed rising to within six or eight feet of the surface (composed of gravel, sand and mould), through which the surface water and water from the privy pits percolated and settled on the bed of clay, which soon caused the well water to become polluted and impure; and also caused frequent epidemics of typhoid fever. The wells are being gradually filled up, so that at the present time we have 2,078 water services put in and a great number more ordered as soon as the frost is out of the ground. The use of pure water and the cleanly condition of the city will account for the almost entire disappearance of typhoid fever.

WM. C. VANBUSKIRK,  
Medical Health Officer.

## STRATFORD.

### NUMBER OF DEATHS AND CAUSES.

*To the Chairman and Members of the Local Board of Health:*

GENTLEMEN,—I have again the privilege of submitting to you the annual report of the health department of the city for the year ending October 31st, 1897. In order to judge of our sanitary standing, it may be well to contrast our death rate with that of the previous year, and also with that of other cities and the number of their contagious diseases as compared with ours. Last year the deaths were 75, and the rate was 7.14 per thousand. This year the number of deaths was 80, and the death rate per thousand 7.61, a fraction over the previous year. To this number Shakespeare ward contributed 23 deaths, Romeo ward 26, Avon ward 17, Falstaff ward 10, Hamlet ward 3, and one not placed. Of this number we find that 14 died under 1 year old, 4 between 1 and 5, 1 between 5 and 10, 2 between 10 and 15, 3 between 15 and 20, 3 between 20 and 30, 3 between 30 and 40, 11 between 40 and 50, 11 between 50 and 60, 13 between 60 and 70, 10 between 70 and 80, and 3 between 80 and 90, and 2 age not given. In looking into the cause of death we find that the deaths from consumption were 7; from cancers, 6; from diphtheria, 2; accident, 5; heart failure, 4; pneumonia, 6; blood poisoning, 2; hemorrhage, 1; anemia, 2; suicide, 1; Bright's disease, 1; old age, 7; convulsions, 2; croup, 1; liver complaint, 1; apoplexy, 3; gangrene, 2; peritonitis, 1; appendicitis, 1; tubercular growth, 1; enteritis, 1; water on brain, 1; operation, 1; paralysis, 5; meningitis, 1; rheumatic fever, 1; found dead, 1; no cause given, 8; typhoid fever, 1; cholera infantum, 3; inflammatory rheumatism, 1; dropsy, 1.

In the gaol 2 deaths occurred, in the house of refuge, 5, and 1 no place given. These were not included in the estimates.

During the year there have been reported 17 cases of typhoid fever with 1 death therefrom. Last year there were 33 cases with 3 deaths. Immediately on receiving a report of the occurrence of this disease an investigation was made by the sanitary inspector as to the cause.

The water and milk supplies were specially investigated. Of the 17 cases we find that 15 were using well water and 2 city water; one of these contracted the disease from home. There are at present 202 families using the city water. In addition to typhoid fever of the so-called preventable diseases, we find that we have had 21 cases of diphtheria, with 2 deaths, as compared with 2 cases the year previous with no deaths. Scarlet fever, we have had 15 cases with no deaths. Last year 45 cases with 1 death. No deaths from whooping cough or measles, a remarkable occurrence.

Contrasting our contagious diseases with that of other cities, we find that Brantford had last year 61 cases of diphtheria, 9 of scarlet fever and 22 of measles—death rate 15.85. Chatham had 16 cases of diphtheria, none of scarlet fever—death rate 12.4. Hamilton had 61 cases of diphtheria with 9 deaths, 47 cases of scarlet fever, 119 cases of typhoid with 5 deaths, 509 cases of measles, and 205 of whooping cough—death rate 13.1. London had 64 cases of typhoid fever with 4 deaths, 22 cases of diphtheria with 6 deaths, scarlet fever 9 cases, 1 death—death

rate a fraction over 10. St. Catharines, 8 cases scarlet fever, 7 cases of typhoid, 2 deaths, diphtheria, 19 cases with 2 deaths, and 89 cases of measles—death rate 13.7. Windsor, 10 cases of diphtheria with 2 deaths, scarlet fever, 23 cases, 8 deaths, typhoid fever, 12 cases. Stratford's death rate being 7.14.

" We find from this contrast that our death rate is much lower than that of any other city for which we feel thankful. We have also reason to congratulate ourselves on our immunity from that much dreaded disease diphtheria. During September last, three families were affected, each irrespective of the other, purely sporadic in character, yet not a little excitement, needless however, seems to have arisen in connection therewith. The development of these cases has given rise to the suggestion, regarding the advisability of having stringent rules printed and posted on the affected houses, governing the conduct of the inmates as to their mingling or having communication with the general public. This I consider would not be judicious or advisable. Diphtheria is no respector of households. It enters the home of the rich as well as the poor, and takes possession of the mansion as well as of the humblest cabin. The same rules could not be adopted in all cases.

" In the discussion on the last report given you on the sanitary condition of the city so far as related to contagious diseases, I find that certain aldermen were laboring under a wrong impression of what is meant by isolation. A few words explanatory thereof, may not be out of place, as it may tend to set aright certain discrepancies which seem to exist: Isolation from a medical standpoint, as well as from any other, means that when a patient is isolated, he is placed in a detached position, separated from others, not afflicted, or placed alone. For example, when a medical man is called to see a patient which he finds to be suffering from any contagious disease, he at once looks into the domestic surroundings, and in the best practical manner, compatible with the welfare of his patient, has him removed to a room as remote as possible from the other members of the household. The room being cleared of carpets, curtains, pictures and other needless furniture, a sheet saturated with some disinfecting solution is hung over the door, and as little ingress and egress as possible allowed between the sick room and the rest of the house. This is what is meant by isolation.

" Unfortunately, however, cases occur in dwellings where this cannot be rigidly enforced, as in many instances there are only three or four rooms in the house and as many or more children, so that nothing is left for the physician but to do the best he can in having as strict cleanliness as possible.

" We always endeavor, when possible and safe, to allow the wage earner to continue his work, the business man to follow his business, but when isolation cannot be successfully carried out, the unfortunate householder must either remain at home or remove to another place until all danger of contagion ceases.

" Isolation differs from quarantine in as much as the latter embodies all the sanitary rules of the former as also the interdicting, prohibiting or restraining of any member of the affected house or place for as long a time as the disease is considered to continue contagious, or all communication with the outside world. Such a proceeding would involve the necessity of employing two officers, one for day and the other for night, to guard the house, which even with our limited number of cases, would incur considerable expense during the year. Fortunately, however, such extreme measures are not considered necessary unless an epidemic be threatened. The rules to govern each individual case must be left to the discretion of the attending physician or to the direction of your Board.

" Notwithstanding the comparative immunity our city enjoys from epidemic and endemic diseases, one or two circumstances have occurred during the year which show most exclusively that an isolation hospital would be a most desirable institution in our midst. In two previous reports, I strongly urged the necessity of having such a place provided, and would so urge again in the light of the statements made by Ald. Vanstone, chairman of the Board of Health, as to the difficulty of enforcing the regulations at present in operation regarding the isolation of patients and the residences in which epidemic diseases exist. Such a hospital would provide a place where patients could be properly isolated and treated under the best possible circumstances. The houses from which the patients have been removed could then be disinfected at once and the quarantine which otherwise would have existed would be unnecessary. The cost of erecting and maintaining such a hospital, together with the proper disinfecting chamber, convalescent room, etc., would not be very heavy, while its usefulness would be very considerable.

" The appointment of Mr. W. F. VanBuskirk as city engineer is a step in the right direction. The carrying out under the superintendence of one engineer of all sewer and other schemes having for their object the improvement of the sanitary condition of the city has everything to recommend it. The assistance and advice which such an officer will give to myself and your sanitary inspector in suggesting remedies for unsanitary conditions will be of the greatest possible value.

" In my last annual report, I was able to suggest that considerable attention was being given to sewage matters ; that the initial steps toward the introduction of system of sewerage were being taken, and that the trunk sewer had been completed from the outlet to Nile street. During the present season a great deal of progress has been made with the work in various parts of the city. Operations were commenced on the trunk sewer across the river, but owing to the height of the water it had to be abandoned, and on account of the press of work in other parts of the city has not been resumed. In addition to the laying of the trunk sewer on Rebecca St., Front and Brunswick streets to Queen, there have been completed sewers on Erie St., on Wellington, Market and Ontario streets to Waterloo St., and Downie St., and the work is in progress on sewers on Shrewsbury St. This shows that the committee have been pushing forward the work of laying the sewers throughout the city.

" The manholes and flushing tanks in connection with those various sewers are all completed, and will be found of great service. The provision of proper means of flushing sewers is most essential, and the importance of flushing the sewers thoroughly and frequently, automatically or otherwise, cannot be too strictly insisted upon.

" The sewer committee, I am glad to notice, have in preparation a by-law governing the use of sewers, and the putting in of house drains. The house drains are much more likely to get into bad condition than the public sewers, and unless put in by competent workmen under the direction of the engineer, are almost certain to cause trouble.

" I cannot too strongly impress upon the Board the necessity of compelling property owners to connect all drains carrying foul water into the sewers when built. An experience some years ago shows that unless there is authority to compel owners to make use of sewers, the connections will not be made. After the completion of the sewers on Hibernia St., Vincent and Huron streets, it was found that a number of cases of typhoid fever occurred in the vicinity with considerable loss of life. The cause seemed to be lack of flushing, want of ventilation at distal end, and also that few connections had been made, and sewers were practically worse than useless. Improperly flushed sewers are infinitely worse than none at all.

" It is certainly a great pleasure to observe that the citizens and members of the council apart from the members of your committee, are becoming more and more alive to the importance of the work being done by you. No committee under the supervision of the mayor can at all compare in responsibility to yours. Yours deals with the consideration of adopting the best means within your power, for preserving the public health and saving human life ; others with financial measures, protection and public convenience.

" I hope that any suggestion or measure recommended by you for the protection of the public health, in your annual report to the council, will not receive that indifference and inattention of former years, but will receive such consideration and action thereon as its importance deserves.

" In conclusion I may say that the usual amount of sanitary work has been done by the inspector, and everything is progressing harmoniously and favorably."

Respectfully submitted,

J. H. ROBERTSON, M.D.,  
Medical Health Officer.

### WINDSOR.

#### REPORT OF THE MEDICAL HEALTH OFFICER.

To the Chairman and Members of the Local Board of Health :

I now submit my report on the sanitary condition of Windsor for the past year.

The records received by me have been carefully perused and show the following statistics :

The population of the City of Windsor is 11,915. The mortality from December 1st, 1896, to December 1st, 1897, has been 152, including eighteen non-residents and seven still born.

The death rate of the year ending November 30th, 1897, is 11.25 per thousand, being lower than that of last year. Of contagious diseases there were as follows :

Diphtheria and diphtheritic croup.....	26 cases and 5 deaths.
Scarlet fever .....	10 " " no "

Phthisis.....	12	deaths.
Typhoid fever .....	1	"
Whooping cough .....	2	"
Under 2 weeks old .....	7	"
" 5 years " .....	31	"
Over 70 " .....	27	"

One hundred and sixty-two houses which were in a bad sanitary condition in regard to drainage and plumbing have been remedied, and new houses which are being erected are strictly supervised.

A new intake pipe has been put in whose diameter is thirty inches, extending out into the Detroit River 840 feet, which is beyond the centre of the channel, forty-seven feet below the surface of the water and ten feet from the bottom of the river. It branches off and empties into two wells with a capacity 8,000 gallons each. The old intake pipe was extended out last year 200 feet, which is beyond the centre of the channel. Formerly it only went to the channel bank. It empties into a well with a capacity of 12,000 gallons. The wells can be cleaned out without stopping the supply of water.

There is no house placarded at the present time for contagious disease.

Our supply of milk has been highly satisfactory, the average per cent. of butter fat on June 28th and June 29th, when I tested fifty-one samples, being above standard, only six being below. The test of sixty samples made on October 11th and 12th was better still, only four being below standard.

On August 2nd and 3rd I visited twenty-eight byres containing in all 204 cows producing 566 gallons of milk. Our milkmen see the necessity of giving good feed to their cattle, also wholesome water, and keeping their surroundings in a healthy state.

Windsor has made considerable improvement in regard to the purity of the water supply, and I now think we can compare with any city or town in Ontario.

Respectfully submitted,

ROBERT LAMBERT,

Medical Health Officer.

Memo.—The foregoing was adopted by the Board of Health December 1st 1897, and by the City Council December 27th, 1897.



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## APPENDIX.

ANNUAL REPORTS OF CITIES, TOWNS, VILLAGES AND TOWNSHIPS  
WITH TABULAR REPORTS OF SPECIAL SANITARY CONDITIONS.

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## CITIES.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it reported at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Belleville .....	R. Tracey, M.D.; D. B. Robertson, Secretary.	Yes; yes.....	Scarlatina, 5 cases; diphtheria, 15 cases, 3 deaths; typhoid, 23 cases, 8 deaths; tuberculosis, 9 deaths.
Brantford .....	F. G. E. Pearson, M.D.; H. F. Leonard, Secretary.	Yes.....	Scarlatina, 39 cases; diphtheria, 36 cases, 5 deaths; typhoid, 31 cases, 7 deaths.
Chatham .....	W. R. Hall, M.D.; W. G. Merritt, Secretary.	.....	Scarlatina, 9 cases; diphtheria, 30 cases, 1 death; typhoid, 85 cases, 5 deaths.
Guelph.....	H. Howett, M. D.; R. Mitchell, Secretary.	Yes; once a year and when complaints are made.	Scarlatina, 22 cases, 1 death; diphtheria, 12 cases, typhoid, 4 cases, 2 deaths; tuberculosis, 20 deaths, of whom a large portion were sent to hospital from outside places.
Hamilton .....	I. Ryall, M.D.; Thomas Beasley, Secretary.	Yes; yearly and when complaints are made.	Scarlatina, 203 cases, 4 deaths; diphtheria, 62 cases, 14 deaths; typhoid, 41 cases, 5 deaths.
Kingston.....	Samuel H. Fee, M.D.; Wm. M. Drennan, Secretary.	Yes; in the spring time and all complaints are examined into.	Scarlatina, 7 cases; diphtheria, 56 cases; typhoid, 7 cases; tuberculosis, 40 cases.
London .....	T. V. Hutchinson, M.D.; Jas. F. Bell, Secretary.	Yes .....	Diphtheria, 141 cases, 12 deaths; typhoid, 65 cases, 12 deaths; scarlet fever, 22 cases, 1 death.
Ottawa. ....	A. Robillard, M.D.; John Henderson, Secretary.	General sanitary inspection once a year.	Scarlatina, 55 cases, 4 deaths; diphtheria, 116 cases, 48 deaths; typhoid, 199 cases, 18 deaths; Tuberculosis, 125 deaths.

## CITIES.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; placarding and isolated at hospital.	Yes used in 6 cases . . . .	Yes.....	Yes ; no . . . . .
Yes; by isolation and placarding.	Yes ; results good . . . .	Most cases are under the direction of sanitary inspector; disinfectants supplied by M.H.O.	Yes . . . . .
.....	Anti-toxine used successfully.		
Yes: patients isolated at home or sent to isolation hospital.	Yes ; results excellent ..	Yes . . . . .	Schools inspected when considered advisable; certificates of vaccination from all new pupils.
Some cases are sent to isolation hospital and other cases are isolated at home.	Cannot say to what extent it has been used; have no faith in it.	Yes : generally . . . . .	No . . . . .
Yes ; with few exceptions, all patients are sent to isolation hospital.	Yes ; results very satisfactory.	No ; enquiry is made in each case by officer of board to ascertain if disinfection has been carried out.	No ; occasionally inspections are made.
The increasing use by medical men of anti-toxine has had much to do with reducing the number of deaths from diphtheria.			
Yes; into hospital for that purpose.	Yes ; results as a rule very satisfactory.	Yes . . . . .	No : no . . . . .

## CITIES.—Continued.

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Belleville . . . . .	Yes . . . . .	Wells and water from city waterworks.	No; no . . . . .	None . . . . .
Brantford . . . . .	Yes . . . . .	Waterworks; $\frac{3}{4}$ ; Wells, $\frac{1}{2}$ ; depth 12 to 60 ft.	Yes, twice a year: no tuberculosis has occurred.	None . . . . .
Guelph . . . . .	Yes . . . . .	Generally from water-works.	Not as yet, but one is proposed.	Four or five; no licenses, but frequently inspected; offal used as manure; no regular inspection of carcasses
Hamilton . . . . .	Physicians are supplied.	Lake Ontario . . . . .	Cow byres are inspected monthly: tuberculin has been used by one milk dealer as far as is known; three animals responded to the test, and I learn were put to fatten for the butchers.	Two; offal is removed to fertilizing works; no systematic examination of carcasses by health department.
Kingston . . . . .	Yes . . . . .	Waterworks . . . . .	Yes; no; no . . . . .	Two; regulation carried out; no licenses; offal is removed from premise after killing: no.
Ottawa . . . . .	Yes . . . . .	Ottawa river . . . . .	Inspection made occasionally; tuberculosis has been found in several instances; tuberculin test is applied to every herd in the city.	None; offal disposed of in the country; no systematic inspection of carcasses by officers of board.

CITIES.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Isthere a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious traders. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
Yes; removed by scavengers.	Yes ..... One hide and tallow rendering factory.		
Night soil is removed by contract; no garbage system as yet.	Yes; 725 connections... Soap factory, varnish works and tannery.		Yes, and in some cases fines imposed.
Yes; \$1.50 per cubic yard.	No .....	No.	
Yes; charge for removal of night soil, \$2.50 for two cubic yards, scavengers at \$4.50 per diem.	Yes; probably 60 to 70 per cent. of houses	Fertilizing works when dead animals; bones and blood, refuse from pork factories are converted into fertilizers, also soap boiling factories.	No.
Yes; removing garbage 10c per bbl. of 24 gal; night soil, 50c per bbl. of 40 gal. for dry earth closets; privy pits, \$2.50 per cubic yard.	Yes; 75 per cent .....	Storing hides, 4; tallow-melting, 1; slaughtering animals, 6; manufacturing gas, 1.	One case.
Garbage removed by carts and cost paid by parties requiring it done; night soil is removed by contract at cost of occupant.	Yes; about one-third of the houses are connected.	Two hide storage houses; 1 soap boiling; 1 gas mfg.; 2 licensed junk stores.	Ten prosecutions for violations of health regulations; 9 convictions.

CITIES — *Concluded.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
St. Catharines...	No M. H. O.; J. Rollinson, Secretary.	General sanitary inspection twice a year.	Scarlatina, 41 cases, 2 deaths; diphtheria, 13 cases, 2 deaths; typhoid, 2 cases, 2 deaths; tuberculosis, 17 cases, 17 deaths.
St. Thomas.....	W. C. Van Buskirk, M.D.; W. B. Doherty, Secretary.	Yes; complaints are attended to when made.	Scarlatina, 10 cases; diphtheria, 88 cases, 15 deaths; typhoid, 1 case; tuberculosis, none.
Stratford. ....	J. S. Robertson, M.D.; R. Lang, Secretary.	Yes; yes.....	Scarlatina, 15 cases; diphtheria, 21 cases, 2 deaths; typhoid, 17 cases, 1 death; tuberculosis, 7 deaths.
Toronto .....	Chas. Sheard, M.D.; John Blevins, Secretary.	General house to house inspection once a year and inspection when complaints are made.	Small pox, 2 cases, no deaths; scarlatina, 1,394 cases, 63 deaths; diphtheria, 741 cases, 156 deaths; typhoid, 198 cases, 24 deaths.
Windsor .....	R. Lambert, M.D.; Stephen Lusted, Secretary.	General inspection.....	Diphtheria and diphtheritic croup 26 cases, 5 deaths; scarlet fever 10 cases; typhoid, 1 death.

CITIES.—*Concluded.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school-children each year?
Yes; by placarding houses and removal to isolation hospital if necessary.	Anti-toxine has been used in a few cases successfully.	Yes; by sanitary inspector.	Compulsory vaccination if considered necessary.
Yes; infected houses quarantined 21 days.	Yes.....	Yes.....	No; no .....
By placarding houses: no isolation hospital.	Yes; large percentage favorable.	Yes.....	Yes; yes .....
Yes; quarantine of infected inmates of houses where contagious diseases have been; daily visitation of quarantine officers and patrolling of all funerals where death is from contagious diseases.	No.....	Yes.....	Yes .....
Yes.....	Don't know .....	Yes.....	Yes.....

CITIES — *Concluded.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
St. Catharines ..	To teachers ....	Waterworks.... .... ..	Monthly inspection of dairy cows; no cases of tuberculosis.	Three; no license; market inspector inspects all meat offered for sale.
St. Thomas.....	To teachers .....		No.....	One, a pork-packing establishment; offal is removed to outside of municipality; no systematic inspection of carcasses.
Stratford.....	Yes .....	Wells, about 20 feet....	Yes; none occurred.	Two on outskirts of city; no license.
Toronto .....	Yes .....	City water supply from lake Ontario.	Yes; no systematic test.	Thirty-five; offal and blood removed daily to places outside the city.
Windsor .....	No; to physicians only.	Detroit river.....	Yes; tuberculosis unknown.	None .....

CITIES.—*Concluded.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewer.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
Yes; 25c per bbl.....	Yes; proportions of connections, 9 to 100.	Tanneries, 3; soap factory, 1; hide storage, 1.	No.
Removed by private parties.	Yes.....		Yes; 5 cases, two for keeping premises in a filthy state, both allowed to go on promise to clean up; three for violations of diphtheria regulations.
Of night soil, so much per cubic yard (about \$2.50); no systematic removal of garbage in vogue,	Yes; but not yet complete.	None .....	No.
Yes; garbage removed twice a week; night soil by private contractors.	Yes .....		Fifteen parties fined \$77; of fences, throwing refuse on vacant lot, selling impure fruit (bananas), breach of ice regulations, breach of quarantine regulations (scarlet fever), breach of the Public Health Act (failure to report C. T.), breach of plumbing by-law.
Hotel garbage removed every other day by persons who use the garbage and don't charge for collecting it; night soil removed by private (licensed) parties in air-tight vessels.	A brick sewer in almost every street.	None .....	Some informations laid but no convictions made.

## TOWNS.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisances is made to Board.	Contagious diseases.
Alliston .....	J. J. Harper, M. D.; W. M. Lockhart, Secretary.	Yes; yes . . . . .	Tuberculosis; several deaths . . .
Almonte .....	No M. H. O.; L. Coulter, Secretary.	Yes; one general inspection.	Scarlatina, 3 cases, diphtheria, 5 cases, 1 death; typhoid, 9 cases, 1 death.
Arnprior .....	No M. H. O.; Geo. E. Nelson, Secretary.	Yes; inspection made during the month of May, and afterwards as called upon.	Scarlatina, 20 cases, 2 deaths; diphtheria, 7 cases, tuberculosis, 10 cases, 10 deaths.
Aurora .....	No M. H. O.; S. H. Lundy, Secretary.	.....	Scarlatina, 1 case, 1 death; diphtheria, 1 case, typhoid, 2 cases.
Amherstburg ...	T. Hobley, M.D.; J. H. Leggatt, Secretary.	General inspection . . . . .	.....
Ailsa Craig .....	John Gunn, M. D.; E. B. Smith, Secretary.	Yes; yearly and on complaint.	None . . . . .
Barrie.....	L. Oliver, M.D.; Henry Bird, Secretary.	Yes; action taken on complaint.	Scarlatina, 5 cases, 1 death; typhoid, 3 cases.
Bowmanville ...	A. S. Tilley, M.D.; R. Windatt, Secretary.	A general inspection made in the spring, and when complaints are made.	Scarlatina, 12 cases, diphtheria, 2 cases, typhoid, 6 cases, tuberculosis, 20 cases, 2 deaths.
Brockville .....	Harry E. Vaux, M.D.; Geo. A. McMullan, Secretary.	Yes; yes; yes.	Scarlatina, 135 cases, 2 deaths; diphtheria, 17 cases, 4 deaths; typhoid, 35 cases, 4 deaths; tuberculosis, 13 deaths.
Berlin.....	H. G. Lackner, M.D.; H. Aletter, Secretary.	General sanitary inspection	Scarlatina, 11 cases, diphtheria, 153 cases, 9 deaths.

TOWNS.—*Continued.*

Is isolation of contagious disease systematically carried out? State methods adopted and whether any isolation hospital exists?	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board.	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No hospital : every case is looked after by attending physician.	Yes ; is kept in readiness for use ; none treated in past 12 months.	Yes, when necessary . . . . .	No ; no . . . . .
No hospital, but houses infected placarded and isolated.	Yes ; no deaths when used.	Physicians in attendance attend to disinfection.	No ; no . . . . .
Yes ; dwelling placarded . . .	Think so . . . . .	Yes, under instructions of attending physician.	No ; no . . . . .
Yes ; by placarding . . . . .	No . . . . .	Yes . . . . .	No ; no . . . . .
No . . . . .	No . . . . .	No . . . . .	No . . . . .
Isolated as completely as possible ; no hospital.	Think not ; some physicians do not use it.	Yes . . . . .	No . . . . .
Yes ; isolated in room, and inmates to the house.	No . . . . .	No . . . . .	No ; no . . . . .
Yes ; the usual remedies, as instructed by the medical attendants.	Yes ; fairly satisfactory.	No ; under the supervision of attending physician.	Yes ; no . . . . .
Isolate contagious diseases as much as possible at home ; no hospital.	Not in common use ; as far as used results satisfactory.	Yes . . . . .	Yes ; no . . . . .

TOWNS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the board?
Alliston . . . . .	No . . . . .	We have waterworks, but not for domestic use; supply obtained from wells varying from 14 to 30 feet.	No : no . . . . .	Two; yes; bones boiled, other organic matter regularly removed.
Almonte . . . . .	No . . . . .	.....	No ; 1 case of tuberculosis in town ; animal destroyed ; cannot say that the test is used.	Two; not licensed but inspected
Arnprior . . . . .	Yes . . . . .	Wells, 18 to 20 feet . . . . .	No ; none ; tubercu-line test in one herd, no disease found.	None . . . . .
Aurora . . . . .	No . . . . .	Waterworks . . . . .	No . . . . .	One; no . . . . .
Amherstburg . . . . .	.....	.....	.....	.....
Ailsa Craig . . . . .	Yes . . . . .	Wells, 3 to 20 feet . . . . .	No . . . . .	None . . . . .
Barrie . . . . .	.....	Artesian wells . . . . .	No ; stables have been inspected ; no tuberculosis ; no test.	Two ; not licensed : inspected.
Bowmanville . . . . .	.....	Wells, about 20 feet . . . . .	No dairies . . . . .	Two ; no license : no . . . . .
Brockville . . . . .	Yes . . . . .	River St. Lawrence ; a few wells still in use.	Yes ; sanitary inspec-tor makes a sys-tematic inspection of all cow byres ; no cases of tuberculosis reported.	None allowed within municipality.
Berlin . . . . .	Yes . . . . .	Waterworks and wells . . .	No ; several animals have been tested.	Seven ; licensed ; yes . . .

TOWNS.—*Continued.*

Is there systematic removal of garbage, and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No; privately attended to.	On the main street only.	Two tanneries; regularly inspected.	None.
Dumping ground provided about a mile outside of town; ground taken care of by the owner, for which the Board of Health pays a yearly sum; removals made by carters at the expense of each individual.	No .....	None .....	
No .....	No .....	None .....	No.
None .....	None .....		No.
		None .....	No.
Yes; at 45c per vault; Board supplies disinfectants and charge owners 50c. per vault.	No .....	None .....	No.
Yes; 30c. per month paid by householders having garbage pits and dry earth closets to scavengers having contracts.	Yes; about 30 per cent.		No.
No; left largely to discretion of parties themselves.	No .....	None .....	No.
Yes; on the main st .....	Yes .....	One storehouse for hides.	No.
Yes .....	Yes ; 1 to 15 .....	Three storing of hides.	One prosecution.

TOWNS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Brampton .....	J. T. Mullin, M.D.; T. L. Blain, Secretary.	Yes.....	Scarlatina, 1 case, 1 death; diphtheria, 2 cases, 1 death; tuberculosis, 3 cases, 3 deaths.
Clinton .....	J. W. Shaw, M. D.; Wm. Coats, Secretary.	General inspection every spring and afterwards when attention is called.	Typhoid, 2 cases, tuberculosis, 5 cases, 5 deaths.
Cobourg.....	E. C. McNicholl, M. D.; D. H. Minaker, Secretary.	Yes; and when complaints are made.	Scarlatina, 8 cases, diphtheria, 7 cases, 1 death; typhoid, 12 cases, 1 death; tuberculosis, 6 cases, 4 deaths.
Cornwall .....	Chas. J. Hamilton, M.D.; Geo. S. Jarvis, Secretary.	Yes; yes.....	
Collingwood ...	A. R. Stephen, M. D.; John Hogg, Secretary.	Yes; at intervals .....	Scarlatina, 30 cases, 1 death; diphtheria, 6 cases, 3 deaths; typhoid, 6 cases, 3 deaths; tuberculosis, 7 deaths
Dundas .....	Thos. A. Bertram, M.D.; Jas. More, Secretary.	Yearly; also when complaint is made.	Typhoid, 3 cases, 1 death; tuberculosis, 6 cases, 6 deaths.
Essex .....	J. W. Brien, M.D.; John Walters, Secretary.	Yes; reported at intervals.	Scarlatina, 5 cases; diphtheria, 2 cases; typhoid, 10 cases; tuberculosis, 2 cases, 2 deaths.
Forest .....	Walter Boyd, M.D.; W. G. Owens, Secretary.	Yes.....	Scarlatina, 1 case.....
Fort William...	T. S. T. Smellie, M.D.; E. S. Rutledge, Secretary.	Annual inspection .....	Diphtheria, 7 cases, 2 deaths; tuberculosis, 3 cases, 2 deaths.
Galt .....	J. S. Wardlaw, M.D.; J. M. Hood, Secretary.	Yes; yes.....	Scarlatina, 4 cases; diphtheria, 58 cases; typhoid, 72 cases.
Gananoque.....	J. A. McBroone, M.D.; S. McCammon, Secretary.	General inspection once a year.	

TOWNS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Patients isolated at home....	Yes : very favorable results.	Yes.....	Yes; no.....
Yes; house quarantined and placarded.	No cases .....	Yes.....	No; no .....
Patients are isolated from the other members of the family as far as practicable.	Anti-toxine has been used in five different cases successfully each time.	Yes.....	No; no .....
When necessary it is effected by removing to other quarters these members of the family who are free from contagion.	Yes, and the result has been very successful.	M.H.O. attends to disinfection.	Yes; no.....
.....	Occasionally with negative results.	Yes.....	No; no .....
No isolation.....	Cannot say .....	Yes.....	Schools inspected frequently.
Yes; placarding; isolating patient and complete quarantine; no hospital.	Yes: very favorable ....	Yes.....	Yes; no .....
All cases isolated; no hospital.	Yes.....	Yes.....	Yes; no.....
Isolation is carried out in an imperfect manner.	Not in general use .....	Yes.....	No .....
Yes; houses placarded and quarantined.	Yes; results good .....	Yes.....	Yes; no.....
Yes; houses placarded.....	Partially used; good results.	Yes.....	No .....

TOWNS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the prairies. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Brampton . . . . .	Yes . . . . .	Wells, 25 feet . . . . .	Yes; no . . . . .	Four; offal fed to pigs.
Clinton . . . . .	Yes . . . . .	Wells, 30 to 50 feet . . . . .	No system; tubercu-line test is used.	Five; yes; buried; no.
Cobourg . . . . .	Yes . . . . .	Partly from wells and partly from water-works; wells from 20 to 30 feet deep.	Yes; no tuberculosis	Three; The butchers pay a license; offal fed to hogs.
Cornwall . . . . .	Don't know . . . . .	Water is taken from Riv-er St. Lawrence and supplied through the waterworks; in outly-ing portions of the town wells are used; depth about 30 feet.	No . . . . .	Three; not licensed; offal buried in fields; no.
Collingwood . . . . .	No . . . . .	Waterworks system . . . . .	No; no . . . . .	Three; no; cooked and fed to hogs; no.
Dundas . . . . .	Yes . . . . .	Town water; through springs.	No . . . . .	None . . . . .
Essex . . . . .	Yes . . . . .	Artesian wells, depth of wells about 120 feet.	No no . . . . .	None; no . . . . .
Forest . . . . .	No . . . . .	Wells . . . . .	No; no . . . . .	No slaughter houses . . . . .
Fort William . . . . .	Yes . . . . .	From river; waterworks under way.	No . . . . .	Three; inspected monthly; offal fed to hogs.
Galt . . . . .	Yes . . . . .	Springs, artesian wells, under control of town waterworks.	Yes; no . . . . .	None . . . . .
Gananoque . . . . .	No . . . . .	Wells, 30 to 32 feet depth.	No . . . . .	None . . . . .

TOWNS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage sys- tem? If so, what proportion of houses to whole is connect- ed with public sewers?	State No., and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecu- tions during the year under Public Health Act? State in detail the nature of the case, and results of same.
Yes; private contract.....	No .....	One gas establishment .....	No.
Yes; ratepayers pay their own cost.	No .....	None .....	No.
No; each householder has to remove it at his own expense.	Yes; in two streets only.	One storehouse for hides.	No.
Yes; night soil is deodor- ized and removed in bar- rels at a cost of 50c. per barrel.	Yes; in about one-third of town.	String of hides .....	No.
Yes; each person has to pay for their own 15c. per month.	No.....	None .....	No.
Systematic removal; cost paid by owners and occu- pants.	No .....	No .....	No.
Yes; householder pays for removal.	Drains .....	None .....	No.
Yes.....	Not a complete system..	None .....	No.
.....	Wooden drains .....	None .....	No.
Yes.....	No .....	None .....	No.
Yes.....	No .....	None .....	No.

TOWNS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspec- tion? Is it repeated at inter- vals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Gore Bay .....	J. Johnston, M.D.; J. S. Hawkins, Secretary.	Action taken only on com- plaint.	No contagious diseases .....
Georgetown ....	W. J. Roe, M.D.; Geo. Goodwillie, Secretary.	General inspection twice a year.	Typhoid, 1 case.....
Goderich .....	W. J. R. Holmes, M.D; W. Mitchell, Secretary.	.....	.....
Harriston .....	W. A. Harvey, M.D.; A. G. Stewart, Secretary.	Yes; yes.....	No contagious diseases.....
Kincardine ....	N. Hopkins, M.D.; J. Scougall, Secretary.	General house to house in- spection yearly.	Diphtheria, 5 cases; typhoid, 4 cases.
Kingsville....	R. D. White, M.D.; W. A. Smith, Secretary.	General inspection several times a year.	Tuberculosis, 2 cases.....
Leamington ....	E. T. Eade, M.D.; W. C. Coulson, Secretary.	Inspected at intervals.....	Typhoid, 3 cases.....
Listowel .....	L. W. Thompson, M.D.; W. G. Binning, Secre- tary.	Yes; yes. . . . .	Scarlatina, 1 case; typhoid, 6 cases; tuberculosis, 2 cases, 2 deaths.
Lindsay.....	J. McAlpine, M.D.; F. Knowlson, Secretary.	General inspection.....	Scarlatina, 1 case; Diphtheria, 4 cases; typhoid, 10 cases.
Meaford .....	J. S. Clark, M.D.; G. G. Albery, Secretary.	Only on complaint .....	Scarlatina, 2 cases .....
Mount Forest ..	No M.H.O.; W. C. Perry, Secretary.	General inspection.....	Scarlatina, 1 case; diphtheria, 1 case; typhoid, 2 cases.
Milton .....	H. A. McCole, M.D.; R. Coates, Secretary.	General inspection every spring.	No contagious diseases.....

TOWNS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious disease, carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; no hospital .....	Yes .....	Yes .....	No; no .....
Yes; no hospital .....	Yes .....	Yes .....	M. H. O. inspects schools.
Yes; no hospital .....	No diphtheria this year .	Yes .....	No; no .....
Yes .....	.....	Yes, when required .....	Yes .....
No hospital .....	.....	Yes .....	No .....
Yes; isolated at home .....	No .....	Yes .....	No .....
Houses placarded .....	.....	No .....	No .....
Yes .....	Not in general use; results favorable.	Under supervision of attending physicians..	No .....
Yes .....	.....	Under sanitary inspector.	Yes; no .....
Yes .....	I think not .....	No .....	No .....
Patients isolated at home .....	.....	Not usually .....	No .....
.....	.....	Yes .....	.....

TOWNS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Gore Bay .....	No .....	Springs, wells and lake..	No ; no .....	Two slaughter houses; no license; fed to pigs.
Georgetown .....	Yes .....	Waterworks system .....	No .....	One slaughter house under inspection.
Goderich .....	No .....	Lake Huron, and wells 8 to 10 feet.	No ; no .....	No .....
Harriston .....	Yes .....	Wells, 12 to 40 feet .....	No ; no .....	None .....
Kincardine .....	No .....	Lake water .....	.....	Two slaughter houses..
Kingsville .....	No .....	Wells and Lake Erie .....	No .....	None .....
Leamington .....	No .....	Wells and waterworks .....	No .....	None .....
Listowel .....	No .....	Wells .....	No ; no .....	Two; not inspected; offal fed to hogs.
Lindsay .....	Yes .....	Waterworks .....	No ; no .....	One; licensed .....
Meadford .....	Yes .....	Waterworks .....	No ; no .....	One; no license .....
Mount Forest ..	Yes .....	Wells .....	No ; no .....	Two; no license .....
Milton .....	Yes .....	Wells .....	No .....	None .....

TOWNS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No; no .....	No .....	None .....	No.
Yes: at owner's cost.....	No, but one is contemplated.	None .....	No.
No .....	Yes, put in sewers this year; 50 connections.	None .....	No.
No .....	No .....	None .....	No.
By householder .....	None .....	None .....	No.
No .....	None .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	One gas works; 1 tannery; 2 storing of hides.	No.
No .....	No .....	None .....	One prosecution for not reporting a case of diphtheria.
No .....	No .....	Two tanneries .....	No.
No .....	No .....	None .....	One against a butcher for keeping slaughter house in filthy condition offender fined.
No .....	No .....	None .....	No.

TOWNS.—*Continued.*

Name of municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Napanee . . . . .	No M. H. O.; J. E. Herriug, Secretary.	House to house inspection .	Scarlatina, 1 case . . . . .
Newmarket . . . . .	W. G. Hutt, M.D.; David Lloyd, Secretary.	Two general inspections yearly.	Scarlatina, 2 cases; typhoid, 4 cases; tuberculosis, 5 cases.
Niagara . . . . .	No. M. H. O.; R. Wilkinson, Secretary.	General sanitary inspection frequently repeated.	. . . . .
North Toronto . . . . .	S. R. Richardson, M.D.; W. J. Douglas, Secretary.	General inspection . . . . .	Tuberculosis, 1 case . . . . .
Owen Sound . . . . .	A. Cameron, M.D.; T. Gordon, Secretary.	General inspection; also of shops and factories.	Scarlatina and diphtheria some cases.
Pembroke . . . . .	W. W. Dickson, M.D.; A. J. Fortier, Secretary.	General inspection . . . . .	Scarlatina, 10 cases; diphtheria, 5 cases, 1 death; typhoid, 12 cases.
Port Hope . . . . .	L. B. Powers, M.D.; J. W. Sanders, Secretary.	. . . . .	Scarlatina, 100 cases, 1 death; tuberculosis, 11 cases, 11 deaths
Port Arthur . . . . .	G. S. Back, M.D.; James McTeigue, Secretary.	Yes; yes . . . . .	Diphtheria, 1 case; tuberculosis, 1 case, 1 death.
Paris . . . . .	D. Dunton, M.D.; S. Dadson, Secretary.	One general inspection . . . . .	Scarlatina, 10 cases; diphtheria, 2 cases, typhoid, 1 case.
Parry Sound . . . . .	J. R. Stone, M.D.; W. J. Haight, Secretary.	General inspection . . . . .	Diphtheria, 1 case; tuberculosis, 2 cases.
Petrolea . . . . .	A. K. Sturgeon, M.D.; G. S. McPherson, Secretary.	Yes . . . . .	Diphtheria, 30 cases, 2 deaths; typhoid, 4 cases, 1 death; tuberculosis, 9 cases, 9 deaths.

TOWNS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
House placarded.....	Yes .....	Left in the hands of physician in attendance.	No; no .....
Isolation is systematically carried out.		Yes .....	Yes, as to sanitary condition.
.....	.....	.....	No .....
.....	.....	.....	.....
.....	.....	.....	.....
Yes .....	Used generally; results very satisfactory.	No .....	The M. H. O. makes occasional inspection.
Houses placarded .....		Yes .....	Yes .....
Houses placarded; clothing and bedding burned.	Yes; results excellent ..	Under personal supervision of sanitary inspector.	Yes; no .....
Yes .....	Yes .....	No .....	Yes .....
I believe so; no hospital ....	In some cases .....	As far as possible .....	No .....
Yes; burning sulphur ...	Yes; satisfactory.....	Yes .....	Yes; no .....

TOWNS — *Continued.*

Name of municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board.
Napanee . . . . .	Yes . . . . .	Wells and waterworks . . . . .	No . . . . .	None . . . . .
Newmarket . . . . .	No . . . . .	Wells, waterworks . . . . .	No . . . . .	Two; not licensed . . . . .
Niagara . . . . .	No . . . . .	Niagara river . . . . .	No; no . . . . .	Three; only allowed to be used during winter months.
North Toronto . . . . .				
Owen Sound . . . . .			A general inspection of dairy cows.	
Pembroke . . . . .		Ottawa River . . . . .	Generally inspected.	None . . . . .
Port Hope . . . . .	Yes . . . . .	Waterworks and wells . . . . .	No . . . . .	None . . . . .
Port Arthur . . . . .	No . . . . .	Waterworks . . . . .	Yes; no cases . . . . .	Four; not licensed . . . . .
Paris . . . . .	Yes . . . . .	Waterworks; some wells . . . . .	No . . . . .	No . . . . .
Parry Sound . . . . .	Yes . . . . .		No . . . . .	Three; no license . . . . .
Petrolia . . . . .	Yes . . . . .	From the lake . . . . .	Yes; no; no . . . . .	Fed to hogs . . . . .

TOWNS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades, (See <i>sic</i> , 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the cases, and results of same.
No .....	Five blocks with a proper system, balance stone sewers.	Tallow melting, 1; storing of hides, 1; soap boiling, 1.	No.
Garbage and night soil is systematically removed .	No .....	None .....	No.
.....	Partial system .....	.....	One; not proven.
.....	.....	.....	One case of impure drainage; a conviction was obtained; another for having a foul ditch; conviction.
.....	.....	.....	No.
No systematic removal....	No .....	None .....	No.
.....	No .....	None .....	No.
Yes; buried and burnt ...	Yes; very few houses...	None .....	One prosecution; taking night soil to nuisance ground and not destroying it; dismissed with costs.
Yes, of night soil .....	No .....	None .....	No.
Yes .....	No .....	None .....	No.
Yes; 50 cents per barrel..	Yes .....	None .....	No.

TOWNS.—*Continued.*

Name of municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Penetanguishene	Geo. Bowman, M.D.; W. H. Hewson, Secretary.	General sanitary inspection	Diphtheria, 2 cases, 1 death; tuberculosis, 2 cases.
Point Edward	H. N. Hayes, M.D.; W. Mitchell, Secretary.	General inspection.....	Typhoid, 3 cases; tuberculosis, 2 cases.
Peterborough	J. Clarke, M.D.; S. R. Armstrong, Secretary.	House to house inspection carried out by sanitary inspectors who include the whole police force.	Diphtheria, 33 cases, 3 deaths; scarlet fever, 19 cases, no deaths; typhoid, 12 cases, 1 death; measles, 3 deaths; whooping cough, 2 deaths: tuberculosis, 20 deaths.
Palmeiston	J. A. Greenlaw, M.D.; S. Caswell, Secretary.	Repeated at intervals .....	Scarlatina, 1 case; typhoid, a few cases.
Rat Portage	S. S. Scovil, M.D.; J. K. Brydon, Secretary.	Regular inspection.....	Scarlatina, 2 cases; diphtheria, 3 cases, 1 death; typhoid, 130 cases, 10 deaths; tuberculosis, 2 cases, 1 death.
Renfrew	N. McCormack, M.D.; J. K. Rochester, Secretary.	Regular inspection.....	Diphtheria, number of cases; scarlatina, a number of cases.
Sault Ste. Marie	No M. H. O.; J. Bassingthwaight, Secretary.	Only on complaint.....	Scarlatina, 6 cases; diphtheria, 6 cases, 1 death; typhoid, 25 cases; tuberculosis, 2 cases, 2 deaths.
Simcoe	J. C. C. Grasett, M.D.; W. C. McCall, Secretary.	General inspection.....	Scarlatina, 10 cases; diphtheria, 1 case, 1 death; tuberculosis, 1 death.
Smith's Falls	C. L. Easton, M.D.; B. E. Sparham, Secretary.	Yes . . . . .	Scarlatina, a number of cases, 2 deaths; typhoid, 4 cases; tuberculosis, 6 cases.
Strathroy	G. Henderson, M.D.; F. J. Craig, Secretary.	Inspection in spring and fall.	Diphtheria, 5 cases, 3 deaths; tuberculosis, 1 case, 1 death.
Tilsonburg	C. McDonald, M.D.; A. Raynes, Secretary.	General inspection twice a year.	Scarlatina, 4 cases; diphtheria, 5 cases; typhoid, 3 cases, 1 death.

TOWNS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes, as far as possible .....	No .....	Yes .....	No; no .....
Yes .....	Used in several cases; results satisfactory.	Yes .....	Yes .....
As far as possible; no hospital.	No diphtheria for several years.	No .....	No; no .....
Yes .....	Good results.....	Yes .....	No .....
Hospital in course of erection.	.....	.....	.....
No .....	Yes .....	No .....	No; no .....
Yes .....	Yes; very good results ..	Yes .....	No .....
Houses placarded .....	.....	No .....	Yes; no .....
Houses placarded .....	No .....	Yes .....	No .....
No .....	No .....	No .....	No .....

TOWNS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state the usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is meat disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Penetanguishene	Yes . . . . .	Town waterworks . . . . .	No ; no . . . . .	One ; no license ; offal fed to hogs.
Point Edward . .	Yes . . . . .	Wells, 20 to 25 feet deep.	No ; no . . . . .	No slaughter houses . . .
Peterborough . .	.....	.....	.....	No complaint during the year.
Palmerston . . .	No ; don't know.	Well water . . . . .	No ; no . . . . .	None ; no ; supposed to be boiled.
Rat Portage . . .	Yes . . . . .	From wells and lake . . .	No . . . . .	Four ; no license . . . .
Renfrew . . . . .	.....	.....	.....	.....
Sault Ste. Marie.	No . . . . .	Waterworks . . . . .	No . . . . .	Two ; no license . . . .
Simcoe . . . . .	Yes . . . . .	Wells, 12 to 30 feet . . . .	No systematic inspection.	None . . . . .
Smith's Falls . . .	No . . . . .	.....	Not that I am aware of.	None . . . . .
Strathroy . . . .	Yes . . . . .	Wells, 15 to 20 feet . . .	Yes . . . . .	Two ; not licensed . . .
Tilsonburg . . . .	Yes . . . . .	Wells, 15 to 20 feet . . .	No . . . . .	Three ; no . . . . .

TOWNS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is cost calculated?	Is there a public sewerage system? If so what proportion of houses of town is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the cases, and results of same.
No .....	Yes .....	None .....	No.
No system .....	No .....	None .....	No.
Removal of garbage and excreta has been carried out very thoroughly.			
By individual effort .....	No .....	No .....	No.
Garbage removed .....	A system of sewerage is now being put in.	None .....	Five prosecutions; in each case a conviction obtained.
Under contract .....			
Garbage removed by householder.	No .....	None .....	One information laid; no action.
Yes .....	A partial system .....	None .....	No.
Yes; 50 cents per barrel ..	No .....	None .....	No.
Yes; by contract .....	No .....	One tannery .....	No.
Yes; 20 cents per house per month.	No .....	None .....	No.

TOWNS.—*Concluded.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Thorold .....	J. K. Johnstone, M.D.; Once a year ..... W. F. Fish, Secretary.		No contagious diseases .....
Trenton .....	J. S. Shurie, M.D.; G. Young, Secretary.	Yes.....	Scarlatina, 4 cases, 1 death; diphtheria, 6 cases, 2 deaths.
Toronto Junc'n.	A. C. Mavey, M.D.; S. Ryding, Secretary.	Monthly inspection.....	
Whitby .....	D. P. Bogart, M. D.; Joseph White, Secretary.	Action taken on complaint.	Scarlatina, 3 cases; typhoid, 1 case, 1 death; tuberculosis, 1 case, 1 death.
Walkerton .....	G. J. Dickson, M.D.; W. S. Gould, Secretary.	Yes, general inspection....	Diphtheria, 7 cases; tuberculosis, 2 cases, 2 deaths.
Walkerville ....	C. W. Hoare, M.D.; C. H. Robinson, Secretary.	Yes .....	Diphtheria, 1 case; scarlatina, 4 cases.
Wiarton .....	H. Wigle, M.D.; W. J. Ferguson, Secretary.	Yes .....	Diphtheria, 4 cases; typhoid, 1 case; tuberculosis, 2 cases, 2 deaths.
Wallaceburg ...	Geo. Mitchell, M.D.; H. E. Johnson, Secretary.	Yes .....	Scarlatina, 1 case, 1 death; diphtheria, 6 cases, 2 deaths.
Woodstock ....	A. McLay, M.D.; J. Morrison, Secretary.	General inspection.....	The town has been extremely free from contagious diseases.
Wingham .....	W. B. Towler, M.D., J. B. Ferguson, Secretary.	Sanitary inspector makes inspection.	Typhoid, 1 case reported: tuberculosis, 1 case, 1 death.

TOWNS.—*Concluded.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.		Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?		Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
	No .....	Yes .....	Yes .....	No .....	
Yes .....	.....	.....	It is .....	.....	Yes; no .....
No .....	No .....	.....	Yes .....	.....	.....
No hospital .....	.....	.....	Yes .....	.....	No .....
Yes ; houses placarded : no hospital.	Not used .....	.....	Yes .....	.....	No ; no .....
Yes ; no isolation hospital ..	Yes .....	.....	Yes .....	.....	Yes .....
Fairly well looked after ; no hospital.	Yes .....	.....	No .....	.....	No .....
Yes ; no hospital .....	Yes ; good results .....	.....	Yes .....	.....	No .....
.....	.....	.....	.....	.....	.....
Yes .....	No cases of diphtheria ..	.....	Yes, under supervision of attending physician.	.....	No .....

TOWNS.—*Concluded.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used?	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Thorold .....	Yes .....	Wells .....	No .....	No .....
Trenton .....	Yes .....	Waterworks .....		One; fed to hogs .....
Toronto Junc'n. ....		Lake Ontario.....		None .....
Whitby .....	Yes .....	Wells, 20 feet .....		Three; under inspection.
Walkerton ....	Yes .....	Complete water works system, a few wells.	No; no .....	Four; no inspection; offal boiled and fed to pigs.
Walkerville ....	Yes .....	Detroit river. ....	No .....	One slaughter house ..
Wiarton .....	Yes; no .....	Colpoys' bay, water works.	No; no .....	None .....
Wallaceburg....	Yes .....	Wells .....	Yes .....	One slaughter house, no license.
Woodstock .....		Waterworks .....		
Wingham .....	Yes .....	Wells, from 16 to 30 feet.	None. ....	None .....

TOWNS.—*Concluded.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kinds of noxious trades, (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
Yes .....	No .....	None .....	No.
Yes; removed by contract.	No .....	None .....	No.
Garbage removed by contract.	Part of town has sewers.	None .....	.....
No.....	No .....	None .....	No.
By private parties only, no contract.	A partial system, which is being extended from time to time.	None .....	No.
Yes .....	Yes; four-fifths of houses are connected.	None .....	No.
Yes .....	Only a partial system.	None .....	No.
Yes, of night soil.....	No .....	None .....	No.
.....	M. H. O. recommends the extension of sewerage system.	None .....	No.
None .....	None .....	None .....	None.

## VILLAGES.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Acton .....	No M. H. O.; T. T. Moore, Sec.	Yes; once a year during the month of May.	None .....
Arkona .....	E. M. Copeland, M.D.; T. W. Trimble, Sec.	Once every year .....	Typhoid, 1 case : tuberculosis, 1 case, 1 death.
Alexandria ...	D. D. McDonald, M.D.; A. S. Smith, Sec.	Yes; Sanitary Inspector visits all premises in municipality at regular intervals whether complaint is made or not, and on special occasions when complaints are made.	Typhoid, 25 cases: diphtheria, 1 case.
Alvinston .....	A. MacKinnon, M.D.; R. Code, Sec.	Yearly inspection .....	Typhoid, 1 case, 1 death; tuberculosis, 1 case, 1 death.
Bobcaygeon ....	Chas. E. Bonnell, M.D.; Chas. Stewart, Sec.	General supervision by Sanitary Inspector and action taken on complaint.	Diphtheria, 4 cases; typhoid, 1 case, 1 death.
Bayfield.....	C. Sheppard, M.D.; John Biggar, Sec.	Inspection once a year and when complaint is made.	Tuberculosis, 1 case .....
Brussels.....	J. A. McNaughton, M.D.; T. S. Scott, Sec.	Yes; Yes .....	Tuberculosis, 2 cases, 2 deaths ..
Beeton .....	D. J. Dunn, M.D.; Joseph Wright, Sec.	General inspection twice yearly.	Scarlatina, 6 cases .....
Burk's Falls....	Dr. Crawford; E. Bazett, Sec.	General inspection once a year, in the spring; repeated when necessary.	Diphtheria, 4 cases, 1 death; typhoid, one case; tuberculosis, 1 case, 1 death.
Brighton .....	N. B. H. Dean, M.D.; J. H. Morrow, Sec.	No; only on complaints ..	Tuberculosis, 2 cases, 2 deaths ..

VILLAGES.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No .....	No .....	No .....	No .....
Yes, when necessary by isolation in residence; no hospital.	No cases .....	Yes .....	Not unless called upon to do so.
Houses in which typhoid patients were confined were not placarded, but usual precautions as to disinfection were taken.	Yes, but no opportunity was afforded this year.	Yes .....	Yes; no .....
Yes .....	No cases .....	Yes .....	No .....
Houses are placarded and patients isolated; no hospital.	Not yet used .....	The M. H. O. or attending physician look to the disinfecting.	No .....
Yes .....	No cases .....	No .....	No; no .....
Yes, by placarding house; no.	No cases .....	Yes .....	Yes; no .....
No hospital, but cases kept isolated as far as possible.	Two physicians use it; results satisfactory.	Either an officer of the Board or physician in attendance.	No; no .....
Yes; isolate the house; no hospital.	Yes; no cases this year in which anti-toxine is used.	Yes .....	No .....
Yes; houses placarded and dwellings isolated.	No .....	Yes, by Health Officer..	Yes; through Health Officer.

VILLAGES.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases, supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Acton .....	No .....	From wells 16 to 30 feet deep.	No .....	None : no inspection.
Arkona .....		From wells about 20 feet.	No ; no cases occurred.	None ; no .....
Alexandria .....	No .....	Wells and waterworks, ground water being very low.	No .....	No slaughter houses allowed in municipality.
Alvinston .....	No .....	Wells 8 to 10 feet .....	No .....	None .....
Bobcaygeon .....		A pipe from a spring to a fountain and wells about 10 feet deep.	No inspection ; believe tuberculin test has been tried on one herd.	Two ; not licensed ; offal fed to pigs ; no inspection.
Bayfield .....	No .....	Wells .....	No ; no .....	One ; no .....
Brussels .....	Yes .....	Well 10 to 15 feet rock.	No ; no ; no .....	None .....
Beeton .....	Are to M. H. O. but not to teachers.	Wells 20 feet .....	No ; in one case test was used ; no.	One ; no ; supposed to be hauled away.
Burk's Falls....	Yes .....	Wells .....	No .....	None within the municipality.
Brighton .....	Yes .....	Wells 10 to 30 feet....	No ; no infection and none reported.	Two ; no burial ; no inspection.

VILLAGES — *Continued*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
None .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Garbage and night soil removed by scavengers to dumping ground outside the municipality; scavengers act under direction of Board and are paid by each householder for what they do.	No .....	Two; tanneries which are inspected from time to time.	Yes; one; a conviction was obtained and afterwards set aside.
Yes .....	No .....	None .....	No.
General cleaning up of yards every spring.	None .....	None .....	None.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	None.
No .....	No .....	None .....	No.
No; every one does as he feels disposed.	No .....	None .....	No.

VILLAGES.—*Continued.*

Name of Municipality	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases,
Bridgeburg ....	Dr. J. R. Mincke; H. Emrick, Sec.	General inspection every year and when complaint is made to the Board.	Scarlatina, 2 cases; diphtheria, 2 cases, 2 deaths; typhoid, 1 case.
Bolton .... .	Wm. J. Lepper, M.D.; Samuel Walford, Sec.	Ye <sup>r</sup> , in May or June, and when complaints are made which seldom occur.	Diphtheria, 2 cases; tuberculosis, 1 case.
Blyth .....	W. J. Milne, M.D.; Thos. W. Scott, Sec.	General inspection once a year and when complaint is made.	Scarlatina, 2 cases; typhoid, 5 cases; tuberculosis, 2 cases.
Beamsville ....	Wm. A. Comfort, M.D.; Chas. E. Riggins, Sec.	An annual inspection and on complaint.	None.....
Belle River....	N. J. Aymot, M.D.; D. Dumouchelle, Sec.	Action taken only when complaint is made to the Board.	Scarlatina, 3 cases .....
Burlington ....	A. A. Speers, M.D.; James Allan, Sec.	General sanitary inspection once every year.	Typhoid, 3 cases .....
Beaverton ...	A. Grant, M.D.; C. A. Paterson, Sec.	Yes; twice a year .....	Tuberculosis, 3 cases, 3 deaths...
Bath .....	H. S. Northmore, M.D.; M. Robinson, Sec.	Yes; yes.....	None.....
Casselman....	J. A. Riddell, Sec.....	Only when complaint is made.	None .....
Clifford .....	Geo. Harrison, M. D.; R. E. Bigger, Sec.	Inspection twice a year....	None .....
Cardinal. ....	D. Gow, M. D.; James Glasford, Sec.	Yes; once yearly.....	Tuberculosis 1 case, 1 death ....
Colborne ....	W. A. Willoughby, M.D.; Geo. Keys, Sec.	Yes; yes, also upon complaint.	Scarlatina, 2 cases; typhoid, 4 cases.

VILLAGES.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Isolation strictly carried out; use of disinfectants; change of clothing, burning of bedding, etc., private funerals; no isolation hospital.	Yes; in one case two injections of 1,000 c. c.; apparent improvement following; death from heart failure on 6th day.	Yes .....	No .....
Yes; on the premises where disease is; no isolation hospital.	Physicians have anti-toxine, but have not yet had a fair opportunity to test it.	Yes .....	There has been an inspection by the Board as a Board.
Yes .....	No diphtheria in 1897 ..	Yes .....	Yes; no .....
None .....		None this year .....	No .....
No; none .....	Yes; results not favorable.	Yes .....	No .....
Houses placarded .....	No cases of diphtheria ..	No .....	Health officer once a year inspects; no.
No .....	No .....	Yes .....	No .....
Yes .....	Yes .....	Yes .....	Yes; no .....
.....	No .....	Yes .....	No .....
No hospital; patients isolated.	No cases .....	No .....	No; no .....
Houses placarded and usual precautions taken.	No cases of diphtheria .. Yes, by the attending physician.	No .....	No .....
Yes .....	Yes; good ..	Yes .....	No; no .....

## VILLAGES.—Continued

Name of Municipality.	Are forms for notification by teachers and M.H.O., of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Bridgeburg . . . . .	Yes . . . . .	Wells about 40 feet . . . . .	No . . . . .	None . . . . .
Bolton . . . . .	No forms have been received for above purpose.	Wells 8 to 10 feet . . . . .	No inspection; no tuberculosis.	None . . . . .
Blyth . . . . .	Yes . . . . .	Wells 4 to 10 feet . . . . .	No; no test has been made with tuberculin.	Two; yes; fed to hogs; yes.
Beamsville . . . . .	Yes . . . . .	Waterworks . . . . .	No . . . . .	None . . . . .
Bel River . . . . .	Yes. . . . .	Wells; about 10 ft. . . . .	No; no . . . . .	One; not licensed; offal fed to hogs.
Burlington . . . . .	No . . . . .	Wells . . . . .	No; no tuberculosis.	None . . . . .
Beaverton . . . . .	No . . . . .	Wells; 25 ft . . . . .	No; no . . . . .	None . . . . .
Bath . . . . .	No . . . . .	From Bay Quinte . . . . .	No . . . . .	Two; Yes . . . . .
Casselman . . . . .	No . . . . .	Wells . . . . .	No; no . . . . .	None . . . . .
Clfford. . . . .	Yes . . . . .	Wells; 16 to 24 ft . . . . .	No . . . . .	Two . . . . .
Cardinal . . . . .	Wells . . . . .	St. Lawrence River and some wells.	No; no . . . . .	None . . . . .
Colborne. . . . .	No . . . . .	Wells . . . . .	No; no . . . . .	None . . . . .

VILLAGES.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?		Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?		State No., and kind of noxious trades, (See sec. 63 Public Health Act.) How licensed and regulated?		Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, any results of same.
Yes; not known	No	None	None	No.		
Garbage raked up and burned by each ratepayer; night soil removed by farmers.						No prosecutions.
Yes	No	None	None	No.		
No	No	None	None	No.		
No	None	None	None	No.		
Garbage removed by those living on premises.	No	None	None	No.		
Yes; at the expense of householder.	No	None	None	No.		
Householders attend to this at their own cost.	No	None	None	No.		
No	No	None	None	No.		
No	No	None	None	No.		
No	No	None	None	No		
Yes	No	None	None	No.		

VILLAGES.—*Continued.*

Name of Municipality.	Name of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Chesley .....	Geo. Cooke, M.D.; Joseph McNeil, Sec.	Yes; yearly inspection and when complaint is made.	Typhoid 3 cases; tuberculosis, 7 deaths.
Chapleau .....	No Board of Health; W. J. Evans, M.D.	Yes. ....	Scarlatina, 2 cases; diphtheria, 1 case, 1 death.
Chesterville ....	No M.H.O.; Miles Knowland, Sec.	Yes; repeated at intervals	Typhoid, 1 case; tuberculosis, 2 cases, no deaths.
Durham .....	James Gun, M.D.; George Russell, Sec.	Yes. ....	None .....
Drayton .....	R. M. Williams, M.D.; A. C. Woodman, Sec.	Yes; yes	Typhoid, 1 case, 1 death; tuberculosis, 1 case, 1 death.
Dunville.....	A. M. Clark, M. D.; J. W. Holmes, Sec.	Yes; continuous by sanitary inspectors.	Diphtheria, 43 cases, 3 deaths..
Dresden.....	No M.H.O.; John Chaple, Sec.	General sanitary inspection once a year, and at intervals as occasion requires.	Scarlatina, 1 case; typhoid, 2 cases; tuberculosis, 1 case, 1 death.
Delhi .....	R. B. Wells, M.D.; Roger Cryslar, Sec.	Yes. ....	Typhoid, 1 case; tuberculosis, 2 cases.
Dundalk .....	Jas. McWilliams, M.D.; W. J. Wardell, Sec.	Yes; yes	None .....
Elmira .....	N. Ulyatt, M.D.; John H. Ruppel, Sec.	Yes; yes; no	None .....
Elora .....	No M.H.O.; Alex. Petrie, Sec.	Yes; yes	Tuberculosis, 2 cases, 2 deaths ..
Erin .....	H. Gear, M.D.; Wm. Conboy, Sec.	Yes; Yes	None .....

VILLAGES.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; complete isolation at residence.	Yes; no cases .....	Yes .....	Yes; no .....
Yes; house placarded and inmates not allowed to mingle with the public; no hospital.	Yes .....	Yes .....	No Beard .....
Yes. ....	No cases. ....	Yes. ....	No; no .....
Not required. ....	No cases. ....	Yes. ....	Yes .....
Yes. ....	Yes. ....	Yes. ....	Yes; no .....
Yes; patients are isolated in a room distant from other members of family, a sheet being placed over the door saturated with disinfectant.	Yes; the physicians are delighted with it.	Yes. ....	Yes; no .....
Carried out under directions of medical attendant.	Yes; physicians here report it as generally successful.	Under supervision of medical attendant.	Yes; yes .....
.....	Yes, treatment very satisfactory.	.....	Yes; no .....
No diseases this year.....	No cases of diphtheria this year.	It would be if required.	No; no .....
No; none .....	.....	Yes .....	Yes; no .....
No .....	Not required .....	No .....	No; no .....
Yes, ordinary precautions taken.	No .....	Yes .....	No; no .....

VILLAGES.—*Continued.*

Name of Municipality.	Are firms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Chesley .....	M. H. O. only .....	Wells ; 8 to 40 ft. ....	No .....	None .....
Chapleau .....	No .....	Wells : 20 to 40 ft. ....	No .....	One .....
Chesterville ...	No .....	Wells. ....	No ; no .....	One ; no .....
Durham.....	Yes .....	Wells ; 30 ft....	No .....	None.....
Drayton .....	Yes. ....	Springs .....	No ; no .....	None ; no ; no .....
Dunnville .....	Yes. ....	Chiefly from wells .....	No .....	None .....
Dresden.....	Yes .....	Wells from 20 to 30 ft... No ; no dairy cows in municipality.	None ; no .....	
Delhi .....	.....	Wells 25 ft .....	No dairy cows ; no..	None .....
Dundalk .....	Yes .....	Wells .....	No : no tuberculosis.	Two ; yes ; fed to hogs ; no inspection of carcasses.
Elmira .....	No .....	Wells 50 ft .....	Yes; yes ; yes .....	Two ; yes .....
Elora .....	No .....	Wells 12 to 40 ft.....	No .....	Three ; no license.....
Erin .....	Yes .....	Wells 25 to 30 ft .....	No ; none .....	None .....

VILLAGES — *Continued*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewer.	State No., and kinds of previous trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
Yes; have dry earth system. No .....	.....	.....	Yes, two prosecutions for keeping hogs in municipality, fined.
No ..... No ..... None ..... No.			
No ..... No ..... None ..... No.			
Yes. .... No .....	.....	.....	No.
Yes. .... No .....	.....	.....	No.
No ..... Partial ..... None ..... No.			
Removed by householder when necessary.	No .....	None .....	No.
No ..... No ..... None ..... No.			
Yes ..... No ..... None ..... No.			
No ..... No ..... None ..... No.			
No ..... No ..... None ..... No.			
None ..... No ..... None ..... No.			

VILLAGES.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint is made to Board.	Contagious Diseases.
Exeter .....	T. A. Amos, M.D.; M. Eacrett, Sec.	General inspection.....	Tuberculosis, 5 cases, 5 deaths ..
Eganville .....	Jas. Reeves, M.D.; John A. Kitts, Sec.	Twice during the year....	Scarlatina, 11 cases; diphtheria, 3 cases; typhoid, 2 cases.
Fergus .....	W. H. Johnson, M. D.; Wm. Ross, Sec.	Once a year and when complaints are made.	Diphtheria, 1 case; scarlatina, 2 cases, 1 death; typhoid, 1 case, 1 death tuberculosis, 1 death.
Hintonburgh ...	J. G. Smith, M.D.; W. A. Mason, Sec.	Sanitary inspection made regularly every year.	Scarlatina, 4 cases; diphtheria, 9 cases.
Hagersville ....	Robt. McDonald, M.D.; John H. Scott, Sec.	Once a year and when complaints are made.	Diphtheria, 1 case; tuberculosis, 1 case.
Hespeler .....	R. McIntyre, M.D.; A. J. Brewster, Sec.	Action taken when complaint is made to the Board.	None .....
Huntsville ... .	F. L. Howland, M. D.; Wm. Runsey, Sec.	Yes; at intervals .....	Diphtheria, 1 case; typhoid, 16 cases; tuberculosis, 1 case, 1 death.
Holland Land'ng	— Howe, M. D.; F. J. Sheppard, Sec.	Every spring and when complaint is made.	None .....
Hensall .....	Jas. Macdiarmid, M. D.; H. J. D. Cooke, Sec.	Inspection every spring and action taken when complaint is made.	Scarlatina, 12 cases .....
Hastings .....	R. Coughlan, M. D.; Alex. Wilson, Sec.	Yes, at intervals.....	None .....
Lakefield .....	Alex. Bell, M. D., Sec....	Twice a year, and action taken when required.	Scarlatina, 3 cases; diphtheria, 1 case; tuberculosis, 4 deaths
Lanark .....	No M.H.O.; W. A. Field, Sec.	General sanitary inspection.	None .....
Lucan .....	— Hossock, M.D.; G. A. Stanley, Sec.	General inspection each spring.	Typhoid, 1 case; tuberculosis, 1 case.
Madoc .....	E. D. Harrison, M.D.; B. O'Hara, Sec.	Yes; yes .....	None .....

## VILLAGES.—Continued

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of a n officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No system .....	Yes .....	No ; physician in attendance looks after it.	Yes .....
Yes, house placarded; sanitary inspector placed in charge.	No ; used in one case with satisfactory results.	Yes .....	No ; no .....
Yes, as well as possible .....	No cases to try it in .....	Yes .....	.....
Yes : majority of cases sent to isolation hospital at Ottawa.	Recommended but not always used ; results generally good.	Yes ; under direction of M. H. O.	No .....
Yes .....	.....	Yes .....	Yes .....
Placard the house .....	Don't know .....	Yes .....	No .....
Yes .....	No .....	Yes .....	No .....
Yes ; none .....	None .....	Yes .....	No .....
Premises placarded and inmates strictly confined.	.....	Yes .....	No ; no .....
.....	No diphtheria .....	.....	Once a year ; no .....
Yes, except tuberculosis ; houses placarded and all external communication forbidden.	No .....	Yes, in all cases .....	No .....
No ; none .....	Don't know .....	No contagious diseases..	No ; no .....
None .....	Did not require it .....	Yes .....	No ; no .....
.....	.....	.....	No ; no .....

VILLAGES.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supplied used on the premises. If from wells, state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and if so whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcases by any officer of the Board.
Exeter .....	No .....	Springs .....	Yes ; no cases of tuberculosis.	Two ; not licensed ; offal fed to hogs.
Eganville .....	Yes .....	Wells 25 ft .....	.....	None .....
Fergus .....	.....	Wells .....	No dairy ; have not heard of any tuberculosis.	One ; no .....
Hintonburgh ..	No .....	Wells .....	Yes; tuberculosis has occurred and test applied.	None .....
Hagersville ..	No .....	Wells 10 to 20 ft.....	No .....	Two ; no ; offal fed to hogs ; no inspection.
Hespeler .....	Yes .....	Wells 20 ft .....	No .....	None .....
Huntsville ..	No .....	Waterworks and wells ..	No .....	None .....
Holland Land'g.	No .....	Wells and springs, 15 to 20 ft .....	No ; none .....	None .....
Hensall .....	No .....	Wells 30 to 35 ft .....	No ; no .....	None .....
Hastings .....	No .....	Springs .....	No .....	None .....
Lakefield .....	Yes .....	Wells, 18 to 30 ft .....	No .....	None allowed in corporation.
Lanark .....	No .....	.....	No ; don't know of any cases of tuberculosis.	Two; not licensed; don't know how offal is disposed of.
Lucan .....	Yes .....	Wells, 35 ft .....	No ; none .....	None .....
Madoc .....	.....	Wells .....	No .....	Two ; no ; buried ; no .....

VILLAGES.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Isthere a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act). How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	Yes .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes : at an average cost of \$1 to each family.	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes .....	No .....	None .....	No.
Each householder runs his own under supervision of inspector.	No .....	None .....	No.
No .....	No .....	No .....	No.
No .....	No .....	None .....	No.
No ; excepting hotels and schools.	No .....	No .....	No.
No ; each householder attends to his own premises.	No .....	None .....	No.
No systematic removal....	No .....	None .....	No.
Each person is compelled to attend to the removal of night soil.	No .....	None .....	No.
No .....	No .....	None .....	No.

VILLAGES.—*Continued.*

Name of Municipality,	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Millbrook .....	N. C. McKinnon, M.D.; Wm. Turner, secretary.	Once a year, and when complaints are made.	Tuberculosis, 1 case, 1 death ....
Markham .....	— Robinson, M.D.; M. White, secretary.	Yes ; yes.	Scarlatina, 14 cases, 2 deaths; diphtheria, 4 cases; tuberculosis, 1 death.
Merritton .....	J. F. Vanderburg, M.D.; R. Clark, secretary.	Repeated at intervals by sanitary inspector.	Diphtheria, 1 case, 1 death ....
Merrickville....	M. R. Church, M.D.; J. Johnston, secretary.	General sanitary inspection made each year.	Diphtheria, 4 cases, 1 death; tuberculosis, 2 cases, 2 deaths.
Maxville .....	J. T. Monro, M.D.; Chas. McNaughton, secretary.	.....	Diphtheria, 2 cases; tuberculosis, 2 cases.
Newcastle ... .	John McNaughton, M.D.; Geo. Curtis, secretary.	General sanitary i n s p e c - tion.	Typhoid, 1 death .....
Norwood .....	S. P. Ford, M.D.; Jas. Calder, secretary.	General inspection once a year, and when complaints are made.	Diphtheria, 1 case; tuberculosis, 1 case, 1 death.
Norwich .....	E. E. Harvey, M.D.; Wm. Fairley, secretary.	General inspection e a c h year.	Tuberculosis, 4 cases, 4 deaths... .
Newburg .....	M. J. Beeman, M. D.; Chas. Welbanks, secretary.	Yes ; yes .....	Typhoid, 8 cases; tuberculosis, 1 case, 1 death.
Omeme .....	J. N. Thompson, M.D.; G. A. Balfour, secretary.	General .....	None .....
Ottawa East....	G. Baptia, M.D.; W. W. Barry, secretary.	Yes, every spring and when complaint is made.	Tuberculosis, 1 case .....
Parkhill.....	Thos. Ovens, M.D.; T. A. Maberry, secretary.	Annual inspection, early part of summer.	Diphtheria, 11 cases, 1 death tuberculosis, 2 cases. 2 deaths.
Preston .....	W. B. Duck, M.D.; W. A. Husband, secretary.	One annual inspection, and a second inspection when complaint is made.	Scarlatina, 1 case; diphtheria, 2 cases.

VILLAGES.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of a n officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
House placarded.....	Not used .....	Yes .....	M. H. O. inspects schools
Yes; infected houses are quarantined.	Yes .....	Yes .....	Yes; yes .....
Houses placarded and isolated.	No .....	No .....	No; no .....
Yes, as much as possible....	No .....	Yes .....	No .....
No .....	No .....	Not always .....	No .....
No .....	.....	Yes .....	No .....
No; no hospital; houses placarded under direction of M.H.O.	Only 1 case in several years.	Yes .....	No .....
No; none.....	None used.....	Yes, in diphtheria and scarlet fever cases.	No; no .....
Yes .....	No occasion .....	Yes .....	Yes; no .....
Placarded and isolated.....	No diphtheria .....	Yes .....	No .....
Yes; some patients are sent to contagious hospital in city of Ottawa.	None used this year .....	Yes .....	No .....
Yes, as soon as report is made placards posted up, and positive orders not to allow any one in or out of premises.	Yes, results very satisfactory.	Yes .....	No .....
Quarantine the house; no hospital.	Yes; results good.....	Yes .....	Yes; no .....

## VILLAGES.—Continued.

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Millbrook .....	No .....	Springs .....	None kept.....	Two; not licensed; boiled and fed to hogs
Markham .....	Yes .....	Wells 15 ft .....	Yes; no cases of tuberculosis .....	None.....
Merriton .....	Yes .....	Waterworks system ....	No; no .. .	None .. .
Merrickville....	Yes .....	Wells .....	No .. .	None .. .
Maxville .....	No .....	Well, 20 ft.....	No .. .	Two; unlicensed .. .
Newcastle.....	M. H. O. supplied	Wells, 25 ft .....	No ; no .. .	Two .. .
Norwood .....	Yes .....	Wells, 20 ft .....	No ; no .. .	None .. .
Norwich .....	Yes .....	Wells, 30 to 40 ft .....	No ; no .. .	One ; no inspection; no license; offal fed to hogs.
Newburg .....	No .....	Springs .....	No .. .	One outside of village..
Omemee .....	No .....	Wells .....	No .. .	None .. .
Ottawa .....	No .....	Wells, 12 to 14 ft .....	No ; no ; no .. .	Two; offal used as manure; no.
Parkhill.....	No .....	Wells, 100 ft.....	No.....	None.....
Preston .. .	No .. .	Wells, 40 ft .. .	No ; no .. .	None .. .

VILLAGES.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
Yes; occupants pay cost of removal.	No .....	None .....	No.
No .....	No .....	None .....	No.
No; schools have dry earth closet system.	No .....	None .....	No.
Removed by contractors at a price per bbl. paid by parties owning property.	No .....	No .....	No.
.....	No .....	None .....	No.
Removed by the householders.	No .....	No .....	No.
No .....	No .....	No .....	No.
Removed by householder; no system established.	No .....	No .....	No.
Each resident attends to their own.	No .....	Tannery and cheese factory.	No.
.....	No .....	No .....	No.
No .....	No .....	No .....	Yes; a slaughterhouse case for feeding offal to pigs; \$1 and costs.
Yes .....	No .....	No .....	No.
.....	No .....	No .....	No.

VILLAGES.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Portsmouth ....	No M. H. O.; Thos. Kelly, secretary.	General inspection in the spring and when complaints are made.	Tuberculosis, 5 cases, 5 deaths ..
Port Colborne ..	.....	Action only when complaint is made.	Scarlatina, 2 cases; diphtheria, 1 case; tuberculosis, 1 case, 1 death.
Port Carling ...	— Canniff, M.D.; R. G Penson, secretary.	Inspection repeated at intervals.	None .....
Port Perry ....	D. Archer, M.D.; F. M. Yarnold, secretary.	General inspection yearly, and when complaints are made to Board.	Diphtheria, 5 cases, 2 deaths; typhoid, 2 cases, 2 deaths; tuberculosis, 1 case, 1 death.
Port Stanley ...	L. J. Mothersill, M. D.; Jas. Gough, secretary.	Yes; once every year and when complaints are made.	Diphtheria, 13 cases .....
Port Dover ....	John R. Hamilton, M.D.; R. M. Taylor, secretary.	.....	Typhoid, 1 case, 1 death; tuberculosis, 1 case, 1 death.
Port Rowan....	E. Meek, M.D.; Jas. Ryan, secretary.	In May of each year, and when complaint is made.	None .....
Port Dalhousie .	John M. Considine, M.D., secretary.	Three or four times yearly.	Typhoid, 2 cases.....
Port Elgin ....	F. H. Wells, M.D.; Wm. Burgess, secretary.	Yes; repeated at intervals.	Scarlatina, 3 cases, 1 death; typhoid, 14 cases, 3 deaths; tuberculosis, 1 case.
Richmond Hill .	No M. H. O.; M. Teefy, secretary.	Yes, when required.....	.....
Richmond ....	R. C. Chanonhouse, M.D.; John Rielly, secretary.	General inspection once a year, and action taken when complaint is made.	Scarlatina, 16 cases 1 death.....
Streetsville ....	No M. H. O.; W. J. Pinney, secretary.	Two; house to house inspection during the year.	Typhoid, 3 cases, 1 death; tuberculosis, 1 case, 1 death.
Springfield ....	R. W. Shaw, M.D.; J. B. Lucas, secretary.	Yes .....	Scarlatina, 4 cases; typhoid, 2 cases, 1 death; tuberculosis, 1 case, 1 death.
Sutton .....	C. F. Noble, M.D.; Thos. Howard, secretary.	Yes .....	Scarlatina, 2 cases; diphtheria, 11 cases (imported from Toronto).
Sundridge.....	A. Carmichael, M. D.; James Dunn, secretary.	Yes .....	Typhoid, 3 cases.....

VILLAGES.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Usually removed to city hospital, Kingston.	Yes; no cases this year.	No .....	No; no .....
No; usually placarded .....		No .....	No .....
No .....		Yes .....	Schools inspected .....
Yes; no hospital .....	Yes; results very satisfactory.	By physician in attendance.	Inspection by sanitary inspector.
Yes; inmates of house isolated.	Yes; good success .....	Yes; the M. H. O.....	No; no.....
By placarding of house only.	None required this year.	Not required this year ..	No; no .....
Houses placarded .....	Yes .....	Yes .....	No; no .....
.....	No .....	Yes .....	Yes .....
Yes .....	No cases .....	Yes .....	No .....
.....	Don't know .....	Yes .....	.....
Yes .....	No occasion to use it....	Yes .....	No .....
No hospital .....		Yes .....	Yes; no .....
Yes .....	Yes, if required .....	Yes .....	No; no .....
Yes .....	No .....	Yes .....	Yes .....
Yes .....	No cases this year .....	Yes .....	Yes; no .....

VILLAGES.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water-bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Portsmouth ....	No .....	Wells .....	None; no .....	None; no .....
Port Colborne..	No .....	Wells and Lake Erie. ....	No .....	None .....
Port Carling ..	No .....	Lake and spring.....	No .....	One; no license; offal burned.
Port Perry ....	Yes .....	Wells, 18 ft .....	None .....	None .....
Port Stanley ...	No .....	Wells, 12 to 14 ft .....	No .....	Two; offal cooked and fed to hogs.
Port Dover ....	Yes; no.....	Wells .....	No .....	One .....
Port Rowan....	No .....	Wells .....	None .....	None .....
Port Dalhousie .	.....	Wells .....	No .....	One; not licensed but inspected.
Port Elgin ....	Yes .....	Wells, 10 to 40 ft .....	No inspection; no cases; no test.	None .....
Richmond Hill .	.....	Wells .....	.....	Two; no licenses .....
Richmond ....	No .....	Wells, 20 ft .....	No; no .....	One; not licensed; offal drawn away; no.
Streetsville ....	Supplied to physician.	Wells, 35 ft .....	No; no .....	Two; one not licensed; offal fed to hogs.
Springfield ....	No .....	Wells, 20 ft .....	No; no .....	Two; offal buried; no.
Sutton .....	Yes .....	Wells, 19 to 20 ft .....	No .....	Two; not licensed but have been kept in sanitary condition; offal buried.
Sundridge ....	Yes .....	Springs .....	No; none .....	One; no; buried; no..

VILLAGES.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No, except in spring; at cost of landlord or tenant.	No .....	None .....	No.
No .....	No .....	None .....	No.
Garbage and night soil are buried.	None .....	No .....	One; for over-crowding and bad ventilation of premises.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Dry earth closets .....	No .....	None .....	No.
No .....	No .....	No .....	No.
.....	No .....	None .....	No.
Yes .....	No .....	None .....	No.
No .....	No .....	.....	No.
By householder .....	About 15 per cent. are connected with public sewer.	One slaughter house .....	No.
No; removal made by householder.	No .....	None .....	None.
No .....	No .....	No .....	No.
No .....	No .....	Slaughtering animals; tallow melting; storing hides.	No.
No .....	No .....	None .....	No.

VILLAGES.—*Concluded.*

Name of municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint is made to Board.	Contagious diseases.
Stirling .....	Jas. S. Sprague, M.D.; J. S. Black, secretary.	Yes .....	None .....
Stayner .....	No M. H. O.; C. E. Jake-way, secretary.	General inspection once a year, and when complaint is made.	None .....
Stouffville .....	I. A. Freel, M.D.; A. G. Brown, secretary.	Yes; once each year in spring.	Tuberculosis, 5 cases .....
Southampton ..	P. J. Scott, M.D.; James Howe, secretary.	General inspection.....	Scarlatina, 4 cases; diphtheria, 1 case, 1 death; typhoid, 1 case.
Teeswater .....	J. Gillies, M.D.; J. Far-quharson, secretary.	Inspection at intervals ....	Scarlatina, 1 case; diphtheria, 2 cases; typhoid, 1 case; tuberculosis, 1 case.
Tara .....	— Wilson, M.D.; J. D. Tobey, secretary.	Yes ; yearly.....	None .....
Tilbury .....	M. Sharp, M.D.; A. A. Wilson, secretary.	Yes .....	None .....
Tottenham ....	C. Campbell, M.D.; Geo. P. Hughes, secretary.	Yes ; twice a year .....	None .....
Tiverton . ....	Wm. Egbert, M.D.; W. D. Weir, secretary.	Inspection once a year ....	None .....
Vienna .....	J. H. Hoover, M.D.; W. Watts, secretary.	Action taken only when complaint is made.	None .....
Watford .....	J. A. McLeay, M.D.; R. McLeay, secretary.	General sanitary inspection	Diphtheria, 8 cases, 3 deaths; typhoid, 4 cases; consumption, 3 cases, 3 deaths.
Waterford .....	A. C. Duncombe, M.D.; S. Cunningham, secretary.	General inspection once a year.	Scarlatina, 2 cases; tuberculosis, 1 death.
Woodville .....	No M. H. O.; J. C. Gilchrist, secretary.	Yes .....	Scarlatina, 2 cases.....
Woodbridge....	No M. H. O.; John McClure, secretary.	Sanitary inspector inspects twice a year.	Tuberculosis, 1 case, 1 death .....
Weston .....	E. F. Irwin, M.D.; R. H. Leighton, secretary.	Inspection once a month ..	Diphtheria, 3 cases; typhoid, 1 case; tuberculosis, 1 case, 1 death.
Wroxeter .....	S. M. Smale, M.D. W. H. Brown, M.D.; J. Cowan, secretary.	No .....	None .....
Winchester ....	—, M.D.; P. McLaughlin, secretary.	Yes. Yes.....	Diphtheria, 3 cases, 1 death.....

VILLAGES.—*Concluded.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give result of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No cases of contagious diseases.	No .....	No .....	No ; no.....
No; houses are placarded and children kept from school.	No cases .....	No .....	No ; no.....
Yes; by quarantine; no hospital.	No; had no cases .....	No; by attending physician.	No ; no. ....
House quarantined.....	No .....	Yes .....	No. ....
Yes; house placarded .....	Not used yet .....	Yes .....	No ; no. ....
Under supervision of M.H.O.	Yes .....	Yes .....	No. ....
No cases .....	No cases.....	No contagious diseases..	No. ....
No .... .....	.....	No cases .....	No ; no.....
No .....	.....	No; under supervision of M. H. O.	No ; no. ....
No hospital .....	.....	.....	No. ....
By placarding .....	Yes, results satisfactorily	Yes .....	No : no. ....
No .....	.....	No .....	No. ....
House placarded. & No hospital.	.....	No .....	No. ....
.....	Not required .....	No cases .....	Children vaccinated at home.
Isolated in house .....	Always used with gratifying results.	No .....	No ; no. ....
.....	No .....	.....	No. ....
No ; not systematically .....	Yes .....	Yes .....	No. ....

VILLAGES.—*Concluded.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If wells, state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred? and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by an officer of the Board?
Stirling .....	No .....	Wells .....	No; no .....	None .....
Stayner .....	No .....	Wells, 12 or 15 ft .....	No .....	None .....
Stouffville .....	Yes .....	Wells, 20 ft .....	No .....	Two; no; fed to hogs; no.
Southampton .....	Yes .....	Wells .....	No; no .....	Two .....
Teeswater .....	Yes .....	Wells, 20 to 50 ft .....	Dairy cows inspected; no cases of tuberculosis.	None .....
Tara .....	No .....	Wells, 25 to 30 feet.....	No; no.....	One; yes; buried; no.
Tilbury .....	Yes .....	Wells .....	No .....	None .....
Tottenham .....	Yes .....	Wells, 10 to 14 feet.....	No; no .....	One; no; safe distance; no.
Tiverton .....	No .....	Wells .....	No; no .....	None; no .....
Vienna .....		Wells, 16 feet .....	No; no; no.....	Two; not used .....
Watford .....	Yes.....	Wells, 22 to 100 feet .....	No; no .....	None.....
Waterford.....	No .....	Wells, 50 feet. ....	No; no .....	None.....
Woodville .....	No .....	Wells, 20 feet deep.....	No; no .....	None; no .....
Woodbridge....	Yes.....	Wells, 40 feet .....	No; no .....	Two; permit to slaughter if kept in sanitary condition.
Weston .....	M. H. O. only..	Wells .. .....	No; no; no.....	Six; kept clean under inspection.
Wroxeter .....	No .....	Wells .. .....	No .....	None.....
Winchester ....	Yes.....	Wells .. .....	No .....	None.....

## VILLAGES.—Concluded.

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
			No.
The Board is trying to have the dry earth system established.	No .....	None .....	No
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes; garbage 50c. per bbl.; night soil 75c. per bbl.	No .....	None .....	No.
Night soil removed once a year, in the spring.	No .....	None .....	No.
No .....	No .....	None .....	No.
Attended to by householder	No .....	None .....	No.
Individual removal every spring.	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.

## TOWNSHIPS.

Name of municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Alnwick .....	T. C. Lapp, M.D.; James Roberts, Secretary.	Action taken when complaints are made.	Diphtheria, 17 cases, 3 deaths; typhoid, 3 cases; tuberculosis, 3 cases.
Albermarle ....	No M.H.O.; C. E. Whicker, Secretary.	Action taken when complaint is made.	None .....
Arran .....	T. J. McNally, M. D.; James M. Monkman, Secretary.	Action is taken when complaint of nuisance is made.	Scarlatina, 2 cases; diphtheria, 6 cases; typhoid, 6 cases; tuberculosis, 1 case, 1 death.
Adolphustown..	— Young, M.D.; R. Dorland, Secretary.	Action taken only when complaint is made.	None .....
Armour .....	William Crawford, M.D.; Alex. Mackie, Secretary.	When complaint is made to Board.	Diphtheria, 1 case, 1 death; tuberculosis, 1 case, 1 death.
Alfred .....	A. A. Gibault; James Brisbois, Secretary.	Only when complaint of nuisance is made to Board	Scarlatina, 10 cases, no deaths; diphtheria, 35 cases, 9 deaths; tuberculosis, 7 deaths.
Arthur ... ....	A. J. Reynolds, M. D.; Geo. Cushing, Secretary.	Action taken when complaint is made to Board.	Diphtheria 6 cases, 2 deaths .....
Ashfield .....	F. McLennan, M.D.; W. Stothers, Secretary.	Only when complaint is made.	Scarlatina, 2 cases; diphtheria, 4 cases, 1 death; typhoid, 2 cases, 1 death.
Athol .....	No M. H. O.; W. Moore, Secretary.	No .....	Tuberculosis, 1 death .....
Ancaster .....	G. D. Farmer, M. D.; Henry Pim, Secretary.	Yes; no.....	Scarlatina, 1 case; typhoid, 4 cases, 4 deaths; tuberculosis, 5 cases, 5 deaths.
Angorna, S.....	— Galligan, M. D.; Fred McGrath, Secretary.	No general sanitary inspection except when complaint is made to Board.	Scarlatina, about 12 cases; diphtheria, 1 case; typhoid, 1 case.

## TOWNSHIPS.—Continued

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists,	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; as far as possible in houses.	When used results are good.	Yes .....	Inspection is made when deemed necessary.
Yes; when necessary .....	Think it is .....	Yes .....	No .....
Yes; placing patients in separate rooms.	No .....	Yes .....	Yes; no .....
Would be if necessary .....	No cases .....	An officer if necessary ..	No; no .....
Houses placarded and visitors strictly prohibited.	Yes .....	Yes .....	No .....
Isolation made in private houses.	Yes; with good results in every case.	Yes .....	No; no .....
No hospital .....	Cannot give any report .	No .....	Yes; no .....
No .....	Four cases of diphtheria, 1 died, 3 recovered, as they were treated with anti-toxine.	Yes.....	No .....
No .....	No occasion to use it....	Yes.....	No .....
No hospital, but as complete isolation as possible.	It has been used in several cases with good results.	Under attending physician.	No .....
No; no hospital.....	Yes; good results .....	No .....	No; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed or evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Alnwick .....	No .....	Wells; generally about 25 feet.	No ; no .....	One ; offal is fed to hogs
Albermarle.....	Yes .....	Largely springs, some wells.	No .....	None.....
Arran .....	Yes .....	Wells .....	No inspection ; no tuberculosis.	Two ; offal is supposed to be cooked and fed to hogs.
Adolphustown .	No .....	Wells .....	No .....	One ; not licensed .....
Armour .....	No .....	Wells .....	No .....	Two ; not licensed .....
Alfred .....	No .....	Wells ; about 12 feet....	No .....	Three ; yes ; buried....
Arthur.....	Yes. ....	Wells ; from 15 to 20 feet deep.	No .....	Two .....
Ashfield.....	No .....	Wells ; 20 to 40 feet ....	No .....	Two .....
Athol .....	No .....	Wells .....	No .....	.....
Ancaster .....	Yes.....	Wells ; from 30 to 60 feet deep.	Yes ; no.....	Four or five; nonlicensed ; are inspected and kept in good condition
Angoria, S .....	Yes.....	Wells ; about 30 feet. ....	No .....	None.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No., and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No systematic removal....	None.....	None.....	No.
No .....	No .....	None.....	No.
No .....	No .....	None.....	None.
Every person looks after his own.	No .....	.....	No.
No .....	No .....	No .....	No.
No .....	No .....	None.....	No.
None.....	None.....	None. ....	No
No .....	No .....	None.....	No.
No .....	No .....	.....	No.
No .....	None.....	None except night soil and slaughter houses; all are rigidly inspected	None.
No .....	No .....	None.....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Assignack and Manitowaning	No M.H.O.; A. W. McLeod, Secretary.	General inspection at intervals during the year.	Tuberculosis, 1 case, 1 death . . .
Amabel .....	— Campbell, M.D.; R. H. Murray, Secretary.	Yes; repeated.....	Scarlatina, 3 cases; diphtheria, 4 cases; typhoid, 5 cases; tuberculosis, 5 deaths.
Aldborough ....	S. M. Dorland, M.D.; E. A. Hugill, Secretary.	Yes; yes; also when complaint is made.	Scarlatina, 7 cases, 3 deaths; diphtheria, 36 cases, 1 death - typhoid, 5 cases, 1 death; tuberculosis, 6 cases, 6 deaths.
Ameliasburg ...	A. J. File, M.D.; F. S. Farncombe, M.D.; T. H. Thornton, M.D.; James Benson, Secretary.	Yes, as regards cheese factories, creameries and slaughter houses, and action taken when complaint is made.	Typhoid, 2 cases; tuberculosis, 7 cases, 6 deaths.
Augusta.....	W. H. Waddell, M.D.; J. W. Place, Secretary.	No; only when complaint is made.	Tuberculosis, 3 cases, 3 deaths . . .
Adelaide .....	F. J. Baleman, M.D.; Chas. Clifford, Secretary.	General inspection.....	Diphtheria, 12 cases, 1 death . . .
Anderdon.....	T. J. Park; A. C. Millicux, Secretary.	Only when complaint is made.	Diphtheria, 2 cases, 1 death; tuberculosis, 4 cases, 4 deaths.
Admaston .....	A. J. Spaling, M.D.; J. Connolly, Secretary.	Only when complaint is made.	Tuberculosis, 3 deaths . . . . .
Barton .....	—; H. Bryant, Secretary.	Occasional inspection.....	None . . . . .
Balfour .....	— Howie, M.D.; R. J. Groulx, Secretary.	General inspection made every spring.	None . . . . .
Bangor, Wicklow and McClure.	G. G. Membray, M.D.; D. Card, Secretary.	No; left to M.H.O . . . .	Scarlatina, 1 death; tuberculosis, 1 death.

TOWNSHIPS.—*Continued.*

Isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Isolated in private or vacant dwellings.	Yes ; when required....	Yes .....	No .....
All isolated .....	Yes .....	Yes .....	No ; no .....
Yes ; house placarded, inmates quarantined; no hospital.	Yes ; results favorable..	Yes .....	Yes ; no .....
Yes .....	Yes .....	Yes .....	No ; no .....
Yes, in all cases ; no hospital	Cannot say.....	Yes .....	No ; no .....
Yes ; no hospital .. .	No .....	Yes .....	Eleven schools.....
House placarded, and if necessary a person appointed to procure medicines and other necessaries.	Yes ; with good results..	Not always.....	No .....
No occasion .....	No cases of diphtheria .....		No .....
	No .....		No .....
No .....	Don't know .....	No .....	No ; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and if so whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board.
Assignack and Manitowaning	None.....	Mostly surface water.....	None.....	Two; no; offal boiled and fed to hogs.
Amabel .....	No; none supplied.	Wells; 18 feet deep.....	No; no; no tuberculin tests.	Three; no.....
Aldborough .....	No .....	Wells .....	No; no .....	Four; no; offal destroyed by owners.
Ameliasburg .....	Yes .....	Wells .....	No; no .....	Three; yes; buried; no.
Augusta .....	No .....	Wells .....		Two; not licensed; offal fed to hogs.
Adelaide .....	.....	.....	.....	.....
Anderdon .....	No .....	.....	No .....	None.....
Admaston .....	.....	Wells; about 10 feet....	No; none; no....	None.....
Barton .....	No .....	Wells, from 10 to 20 feet.	Yes; no cases of tuberculosis.	Twelve; not licensed; offal fed to hogs.
Balfour .....	No .....	Chelmsford creek .....	No .....	None .....
Bangor, Wicklow, and Mc-Clure.	No .....	Wells and springs .....	No; no; no tuberculin test.	One; offal fed to hogs.

TOWNSHIPS.—*Continued*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, any results of same.
Mostly drawn away and burned.	None.....	None.....	No.
No .....	No .....	None.....	None.
Yes; cost paid by owner or occupant of premises.	No .....	None.....	No.
.....	No .....	None.....	No.
.....	No .....	None.....	No.
.....	No .....	None.....	No.
No .....	No .....	None.....	No.
No .....	No .....	None.....	None.
No .....	No .....	None.....	None.
No .....	No .....	None.....	No.
No .....	No .....	None.....	No.

TOWNSHIPS.—*Continued.*

Name of municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Bagot and Blythfield.	Bourne, M. D. ; M. Ryan, Secretary.	No .....	Scarlatina, one case ; 1 tuberculosis case, 1 death.
Bosanquet.....	H. S. Clarke, M.D. ; Geo. Sutherland, Secretary.	General sanitary inspection	Scarlatina, a few cases, tuberculosis, several cases, 4 deaths.
Bedford.....	Wm. Parker, M.D. ; Jas. McNeil, Secretary.	Inspection only when complaint is made.	None .....
Blandford .....	E. Bromley, M.D. ; Edward Wilson, Secretary.	No ; only when complaint is made.	None .....
Blenheim ..	J. A. Mitchell, M.D. ; F. M. Ainslie, Secretary.	Yes, so far as slaughter houses, cheese factories and school houses are concerned ; action taken when complaint is made.	Scarlatina, 2 cases ; diphtheria, 6 ; typhoid, 3 cases ; tuberculosis, 5 deaths.
Burleigh and A.	A. Bell, M.D. ; R. W. C. Shewin, Secretary.	Only on complaint.....	Diphtheria, 6 cases, 2 deaths ; tuberculosis, 2 cases, 2 deaths.
Burpee .....	Joseph Johnston, M. D. ; Isaac Campbell, Secretary.	Action taken when complaint of nuisance is made	None .....
Bonfield.....	M. James, M.D. ; Louis Manseau, Secretary.	Yes ; action taken only when complaint is made to Board.	Scarlatina, 10 cases, 1 death ; diphtheria, 2 cases ; typhoid, 5 cases.
Biddulph .....	H. Lang, M.D. ; W. D. Stanley, Secretary.	Only when complaint is made.	Diphtheria, 1 case, 1 death ; typhoid, 4 cases, 1 death ; tuberculosis, 1 case, 1 death.
Beverly ... ....	J. T. Manes, M. D. ; Wallace McDonald. Secretary.	Action taken only when complaint is made.	Scarlatina, 21 cases, 1 death ; diphtheria, 1 case ; typhoid, cannot give number ; tuberculosis, 8 cases, 8 deaths.
Bentinck .....	----- ; Duncan Campbell, Secretary.	Yes, and at stated times when called upon.	Diphtheria, 1 case .....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No .....	Don't know .....	Yes .....	No ; no .....
Yes.....	No ; no .....		No ; no .....
Not required this year .....	No cases in two years... .....	Yes, by sanitary inspector.	No ; no .....
Yes ; placarded ; no hospital	None required .....	Fairly.....	No ; no .....
Yes ; patients are confined to one room, family excluded ; no hospital.	In most cases ; results favorable.	Under their orders, but not under their personal supervision.	.....
Yes ; no hospital; isolation of houses by placarding.	No ; has been used to advantage.	Yes, always.....	No ; no .....
No hospital ; no diseases...	No ; no .....		No .....
No ; patients isolated in their houses.	Yes ; results favorable..	Yes .....	No ; no .....
Yes, by placarding.....	Yes ; not enough cases to report.	No .....	No ; no .....
Isolation as strictly as possible is carried out in the houses. ,	Only one case for the year.	Not always .....	No ; no .....
Yes ; 'premises isolated ; no hospital.	No report .....	Yes.....	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state the usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Bagot and Blithfield.	No .....	Wells, 10 to 18 feet deep.	Don't know .....	Two ; no.....
Bosanquet .....	No .....	One.....		Two ; offal fed to hogs.
Bedford .....	No .....	Wells, about 6 feet deep.	No ; no cases of tuberculosis.	None .....
Blandford .....	No .....	Wells generally, from 20 to 36 feet.	No ; yes ; no .....	Six ; no; cannot say: no
Blenheim .....	No ; reports are supplied physician.	Wells, from 15 to 40 feet	No; no cases .....	Three ; no ; offal generally fed to hogs ; no.
Burleigh and A.	No .....	Wells and a few springs. 10 feet.	No ; no .....	None ; no .....
Burpee .....	No .....	Wells, 8 feet deep .....	No ; no .....	None.....
Bonfield .....	No .....	Wells .....	No .....	One ; no ; no.....
Biddulph .....	No .....	Wells, 25 to 30 feet.....	No ; don't know of any.	Two ; no ; offal fed to pigs ; no.
Beverly.....	Yes .....	Wells .....	No ; no tuberculosis.	Three ; no licenses; offal is buried; no inspection of carcasses by any officers of board.
Bentinck .....	Yes .....	Wells .....	No .....	Two, not licensed; no inspection of carcasses.

TOWNSHIPS.—*Continue!.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
			None.
School closets are well looked after.	No .....	None .....	None.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Done by householders; usually buried.	No .....	None .....	No.
	No .....		No.
Each person removes his own.	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	None.
No .....	No .....	No .....	No.

## TOWNSHIPS.—Continued.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Brighton .....	N. B. H. Dean, M.D.; Darius Crouter, Secretary.	Not general .....	Scarlatina, 8 cases, 1 death; diphtheria, 1 case; typhoid, 10 cases; tuberculosis, 6 deaths.
Brantford .....	C. D. Chapin, M.D.; R. M. Wilson, Secretary.	Action taken only when complaint of nuisance is made.	Typhoid, 15 cases, 1 death; tuberculosis, 3 cases, 3 deaths.
Blanshard .....	H. K. Ferguson, M.D.; John Jamieson, Secretary.	Yes ; no ; yes .....	Diphtheria, 1 case : typhoid, 8 cases ; tuberculosis, 20 cases ; about 3 deaths.
Brock .....	McDermott & Jardine, M. D.'s.; Thos. H. Walshe, Secretary.	Yes ; once a year and when complaints are made.	Tuberculosis, 4 deaths . . . . .
Bexley .....	Chas. N. Laurie, M. D.; Alfred Taylor, Secretary.	No ; no ; only when complaint is made.	Diphtheria, 4 cases. 1 death . . . . .
Bertie .....	N. Brewster and A. H. Kilman, Secretary.	Yes, one annually, after which action is taken on complaint.	Scarlatina, 8 cases; diphtheria, 25 cases, 5 deaths; typhoid, 21 cases, 1 death ; tuberculosis, 2 cases, 2 deaths.
Burgess, N .....	No M.H.O.; P. McFarland Secretary.	None .....	None . . . . .
Bromley .....	A. J. Sparling, M.D.; Patrick Hart, Secretary.	.....	Scarlatina, 12 cases, 1 death ; diphtheria, 10 cases, 2 deaths.
Burford .....	Robt. Harbottle, M. D.; Phillip Kelly, Secretary.	No ; only upon complaint .	Scarlatina, 1 case ; diphtheria, 3 cases ; typhoid, 1 case ; tuberculosis, 4 cases ; measles. 3 cases, whooping cough 3 cases.
Brooke .....	A. McKinnon, M.D.; W. G. Willoughby, Secretary.	Only upon complaint .	.....
Brant .....	A. B. Taylor, M.D.; J. H. Cannon, Secretary.	General inspection yearly in May, and when complaint is made.	Two families reported to have diphtheria; no deaths reported.
Brougham .....	B. G. Connolly, M.D.; M. Sheedy, Secretary.	When complaint is made only.	Scarlatina, 11 cases . . . . .

TOWNSHIPS.—*Continued.*

Isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Isolated in house; no hospital.	Not used .....	Yes, under M.H.O. ....	No; no .....
As far as possible; patients sometimes sent to hospital in Brantford city.	Don't know .....	Yes.....	No .....
Yes; houses placarded; inmates not allowed to mingle with the public.	Yes; results satisfactory	Yes .....	Yes; no.....
Only partially; houses placarded.	Yes .....	Only in some cases....	Yes ; yes .....
Yes, houses placarded and watched by an officer; no hospital.	Not used yet .....	Yes .....	No ; no .....
Isolation by M.H.O.....	Not used this year .....	Yes .....	No ; no .....
.....	.....	.....	.....
Isolation carried out .....	Yes; results very satisfactory.	No .....	No ; no .....
This work is exceptionally well done in this township.	.....	No .....	No ; no .....
Not systematically, no hospital.	Do not know .....	No ; under the care of the physician in charge	No ; no .....
Placarded by order M.H.O.; no isolation hospital.	No .....	Attending physician or M. H. O. notify sanitary inspector who disinfects and removes placard.	Don't know .....
Yes ; no hospital .....	.....	Yes .....	Yes .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board.
Brighton .....	Have been supplied in the past.	Wells and some cisterns.	No ; no cases of tuberculosis.	Three, not licensed; offal fed to hogs; no systematic inspection.
Brantford .....	No .....	Wells .....	No ; no cases of tuberculosis .....	Five or six, not licensed, but are kept in sanitary condition; no inspection of carcasses.
Blanshard .....	Yes .....	Wells, 15 to 40 feet .....	No ; yes ; yes .....	Three, not licensed; burned or buried; no
Brock .....	Yes .....	Wells, 20 to 30 feet.....	No .....	One; inspector examines and reports to board.
Bexley .....	No .....	Wells, 25 feet .....	No ; no .....	One ; no .....
Bertie.....	No .....	Wells 20 to 80 feet.....	No inspection ; no tuberculosis.	Six local butchers; not licensed; offal is fed to hogs.
Burgess, N.....	.....	Wells 20 feet .....	None .....	None .....
Bromley .....	No .....	Wells and springs .....	None .....	No .....
Burford .....	No form for teachers.	Wells, springs and cisterns.	No ; yes .....	Offal fed to pigs .....
Brooke .....	No .....	Wells and springs 10 to 25 feet.	No; no tests .....	One slaughter house; offal buried.
Brant .....	.....	Chiefly wells; water good.	.....	.....
Brougham.....	No .....	Creeks .....	No ; no .....	None .....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is cost calculated?	Is there a public sewerage system? If so what proportion of houses of whom is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	No .....	No.
No .....	None .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
None .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	Slaughter houses.....	No.
No .....	No .....	.....	No.
No ; no .....	No .....	No .....	No.
No .....	None .....	None .....	No.

TOWNSHIPS — *Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Caldwell .....	No M.H.O.; O. Lafrance, Secretary.	None.....	
Cardwell .....	J. P. Waddy, M.D.; M. Wilson, Secretary.	Only when complaint is made.	None .....
Caradoc .....	M. Rice, M. D. ; Chas. Lockwood, Secretary.	Yes; yes .....	Typhoid, 4 cases; tuberculosis, 2 cases.
Carlow .....	No M. H. O.; W. C. Parkhurst, Secretary.	No .....	None .....
Carling .....	No M.H.O.; Jas. Crerar, Secretary.	.....	None .....
Carden .....	No M.H.O.; John Walsh, Secretary.	Action taken only when complaint is made to Board.	None .....
Cardiff .....	Chas. Knox, M.D.; A. W. Willis, Secretary.	Only in case of complaint being made.	None .....
Caistor .....	R. H. De Lamatter, M.D.; W. G. Warren, Secretary.	Yes .....	Diphtheria, 9 cases, 3 deaths; tuberculosis, 5 cases, 5 deaths.
Caledon .....	James Algie, M. D.; D. Kirkwood, Secretary.	Action taken on nuisance only.	Scarlatina, 8 cases; diphtheria, 4 cases; typhoid, 4 cases.
Canborough ...	A. M. Clark, M.D.; J. W. Paget, Secretary.	Action taken only when complaint is made.	Diphtheria, 19 cases, 4 deaths ...
Calvin .....	M. James, M. D. ; W. T. Gale, Secretary.	Action taken .....	None .....
Cavan.....	Geo. Soothern, Secretary..	No; no; yes.....	Tuberculosis, 2 cases, 2 deaths ...

TOWNSHIPS.--*Continued.*

Isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
.....	.....	.....	No .....
Isolated in home; no hospital.	Not procurable when required.	Yes .....	Inspection of schools carried out.
Yes .....	Yes; very favorable .....	Yes .....	No; no .....
No .....	No .....	No .....	No .....
.....	.....	.....	No .....
Yes; no hospital .....	No; some physicians would not recommend it.	Yes .....	No .....
No occasion .....	No .....	Yes .....	No .....
Yes, by placarding; no hospital.	No .....	Yes .....	No; no .....
Yes, by placarding and sanitary police when necessary; no hospital.	Not in common use....	Not always, but in several cases under supervision of M.H.O.	No; no .....
Isolated as much as possible in the house; no hospital.	Yes; very satisfactory..	In nearly every case ....	No; no .....
None required....	None .....	When necessary .....	No; no .....
Yes, removed to hospital in Peterborough.	No occasion .....	Yes .....	No; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forums for notification by teachers and M. H. O. of contagious diseases, supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred? and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Caldwell .....	Yes .....	Wells 12 feet .....	No inspection.....	None .....
Cardwell .....	No .....	Springs .....	No .....	None .....
Caradoc .....	No .....	Wells 16 feet .....	No ; no ; no test ...	Two ; yes by burying and feeding.
Carloss .....	No.....	Wells 20 feet .....	No .....	None .....
Carling.....	No .....	.....	No .....	None...
Carden.....	No .....	Wells 15 to 30 feet .....	No ; no .....	None ; no .....
Cardiff .....	No .....	Creeks .....	No .....	None.....
Caistor .....	Yes .....	Wells 12 to 15 feet.....	No .....	Five ; no ; in good sanitary condition.
Caledon .....	Yes .....	Wells .....	No ; can't say .....	Seven ; inspection on complaint being made
Canborough ....	No .....	Chiefly from cisterns....	No .....	No licensed slaughter-houses.
Calvin .....	No .....	Wells 5 to 10 feet.....	No .....	None.....
Cavan.....	Yes .....	Wells 30 feet .....	No .....	Two ; no ; cannot say ; no.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage sys- tem? If so, what proportion of houses to whole is connected with public sewers?	State No., and kinds of noxious trades, (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecu- tions during year under Public Health Act? State in detail the nature of the cases, and results of same.
None.....	None .....	None .....	None.
No ..... .	No .....	None .....	No.
No .....	No.....	None .....	No.
No .....	None.....	None .....	No.
No .....	.....	None .....	No.
No .....	.....	None .....	No.
No .....	.....	None .....	No.
By householders .....	No .....	None .....	No.
No.....	No .....	Tannery; kept in sani- tary condition.	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	Two cheese factories, two slaughter houses; not licensed.	No.

## TOWNSHIPS—Continued.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Carrick .....	R. E. Clapp, M. D.; C. Schurter, Secretary.	Yes; villages in township inspected once or twice a year, and when complaint of nuisance is made.	Scarlatina, 1 case; diphtheria 2 cases; typhoid, 2 cases, 2 deaths.
Carnarvon.....	F. R. R. Berry, M. D.; Wm. Vincer, Secretary.	No .....	None .....
Cartwright .....	No M.H.O.; Wm. Lucas, Secretary.	General inspection once a year and when complaint is made.	None .....
Chaffey .....	H. L. Howland, M. D.; Wm. Clarke, Secretary.	Only on complaint.....	None .....
Christie .....	A. P. Waddy, M.D.; Wells Thompson, Secretary.	Only on complaint.....	None .....
Chapman.....	P. D. Tyerman, M. D.; Joseph Wilson, Secretary.	Yes, twice a year and action taken when complaint of nuisance.	Tuberculosis, 1 case, 1 death ....
Charlottenburgh	A. Falkner, M.D.; G. H. McGillivray, Secretary.	Action only when complaint of nuisance is made.	Diphtheria, 15 or 20 cases, 3 deaths; typhoid, 3 cases; tuberculosis, 8 or 10 cases, 2 deaths.
Charlotteville ..	W. J. McInnes, M. D.; John Machon, Secretary.	Only when complaint is made to Board.	Tuberculosis, 4 cases, 4 deaths....
Claredon and Miller.	No M.H.O.; R. W. Wood, Secretary.	No .....	None .....
Cockburn Isl'd..	No M.H.O.; A. Monck, Secretary.	No .....	None .....
Clarke .....	No M.H.O.; John Rickaby, Secretary.	Schools, cheese factories and slaughter houses, and when complaints are made.	Scarlatina, 1 case; typhoid, 1 case.

TOWNSHIPS—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No .....	No .....	No .....	Yes ; no .....
Yes .....	No .....	Yes .....	No .....
Systematically carried out... By placarding ; no hospital.. Houses placarded .....	Don't know. .... No occasion to use it.... Don't know. ....	Yes .....	No ; no .....
Patients isolated in their homes. Yes, in separate rooms ; no hospital.	No occasion to use it.... Yes ; good .....	Under the supervision of M.H.O. Yes .....	No ; no .....
By isolation ; no hospital.... .....	Not generally used ; when used, results good. No cases.....	Yes .....	No .....
No .....	No .....	No .....	No .....
As reported by physicians it is.	No cases.....	* Physician attending looks after this.	Yes. ; yes.....

TOWNSHIPS—*Continued.*

Name of Municipalities.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water-bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred? and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the board?
Carrick .....	No .....	Wells .....	No; don't know; no ..	Three; yes; buried ..
Carnarvon .....	No .....	Wells .....	No .....	None .....
Cartwright ....	No .....	Wells generally 24 feet ..	No; no .....	None .....
Chaffey .....	No .....	Wells and springs .....	No .....	Three; offal is boiled on the premises.
Christie .....	No .....	Wells and springs.....	No inspection; no cases ..	One; no license .....
Chapman .....	No .....	Wells and springs.....	No; no .....	None .....
Charlottenburgh	No .....	Generally wells 4 to 30 feet.	No inspection; tuberculin test only used in thoroughbred stock.	Two; not licensed .....
Charlottesville...	Yes .....	Wells .....	No; none .....	Don't know .....
Claredon and Miller.	Yes .....	Wells 12 feet .....	No .....	
Cockburn Isl'd..	No .....	Wells and streams.....	No .....	None .....
Clarke .....	To physicians ..	Wells and springs.....	No; no .....	Three; no .....

TOWNSHIPS—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses of whole is connected with public sewers?	State No., and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Each householder removes his own.	No .....	None .....	No.
Yes .....	None .....	None .....	None.
Not systematically, but generally well attended to.	No .....	None .....	No.
None.....	No .....	None .....	No.
.....	.....	.....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	Yes; one party fined \$5 for keeping hogs on cheese factory premises.

TOWNSHIPS — *Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Colchester, S ...	W. J. Campeau, M. D.; Joseph Drummond, Secretary.	Action taken when complaint is made.	Scarlatina, 50 cases; typhoid, 1 case, 1 death; tuberculosis, 6 deaths.
Colborne .....	Taylor, M.D.; F. W. McDonagh, Secretary.	Only when complaint is made.	Tuberculosis, 1 case..... . . .
Colchester, N ...	James Brein, M.D.; J. A. Coulter, Secretary.	When any complaint is made.	Tuberculosis, 4 cases..... . . .
Cramahe .....	No M.H.O.; R. B. Watt, Secretary.	No complaints made to Board.	Scarlatina, 1 case, 1 death; typhoid, 2 cases; tuberculosis, 1 case.
Crosby, S .....	D. A. Coon, M.D.; J. R. Dargavel, Secretary.	No inspection, only on complaint being made.	None .. . . . .
Culross..... .	Gillies, M.D.; Chas. Button, Secretary.	Some inspection made.....	Very few cases, one or two deaths from consumption.
Cumberland ....	James Ferguson, M.D.; H. W. Dunning, Secretary.	Only when complaint is made.	Diphtheria, 3 deaths..... . . .
Cornwall .....	H. J. Harrison, M.D.; J. A. Mullin, Secretary.	Only upon complaint, except in case of slaughter houses. These are inspected at regular intervals.	Scarlatina, 12 cases, 2 deaths; diphtheria, 10 cases, 3 deaths.
Clarence .....	N. Desrosers, M.D.; Joseph Minard, Secretary.	When complaint is made..	Typhoid, 5 cases; tuberculosis, 5 cases, 2 deaths.
Cambridge .....	F. M. Puras, M.D.; J. B. Sauche, Secretary.	General inspection.....	Diphtheria, 7 cases .. . . . .
Crowland .....	Dr. Glasgow; W. H. Biggar, Secretary.	Action taken on complaint.	Diphtheria, 1 case, recovered . . .

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No .....	No .....	No .....	No .....
No .....	Think so .....	Yes .....	No; no .....
Placarding, etc .....	Don't know.....	Yes .....	No .....
Yes; houses placarded; no hospital.	Yes; no cases exist.....	Yes .....	No .....
No .....	Cannot say ..	No contagious diseases..	No; no .....
.....	.....	.....	No .....
By placarding .....	Two cases treated with anti-toxine, one successful, one died.	Yes .....	No; no .....
Isolated as far as possible at patient's houses. Houses placarded. Inmates are kept from mingling with the public or attending school.	Yes, very general good results. Had a very severe type of diphtheria this year, and all physicians seem to be loud in praise of anti-toxine.	No; usually under the attending physician.	No .....
No .....	No .....	Yes .....	No .....
No .....	Sometimes used.....	Yes .....	No .....
As far as possible; no isolation hospital.	Don't know.....	Has not been necessary ..	No; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used?	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Colchester, S...	No .....	Wells from 8 to 30 feet..	No .....	One ; no ; fed to hogs..
Colborne .....	No .....	Wells, 30 to 50 feet .....	No ; no .....	None.....
Colchester, N...	No .....	Wells, from 60 to 100 feet.	No ; heard of none ..	None.....
Cramahe .....	Yes .....	Wells, about 20 feet ....	No ; no cases of tuberculosis.	Two ; yes : given to hogs ; yes.
Crosby, S.....	No .....	Wells .....	No ; none reported..	Two ; no inspection....
Culross .....	Not required....	Wells, 20 to 60 feet .....	.	Three or four for the use of farmers ; offal is used as manure.
Cumberland ...	No .....	Wells .....	No .....	Two ; no license.....
Cornwall .....	No .....	Wells .....	No .....	Three ; no ; buried and partly fed to hogs.
Clarence .....	Yes .....	Wells, 20 feet.....	No .....	Five ; no.....
Cambridge .....	No .....	Wells .....	No ; no .....	Three slaughter houses ; no license.
Crowland .....	Cannot say....	Wells, generally about 30 feet.	No ; no .....	None ; no.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No., and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
Don't think so; no.....	None.....	None.....	No.
No .....	No .....	None .....	None.
No .....	No .....	None.....	No.
No .....	No .....	None.....	No.
None.....	No .....	None .....	No.
No .....	No .....	One; slaughtering of animals; no license.	One party fined for keeping a dumping ground.
No .....	No .....	None .....	No.
None.....	None.....	None .....	No.
No .....		.....	None.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint is made to Board.	Contagious diseases.
Darling .....	No M.H.O.; Jas. H. Rintoul, Secretary.	Action taken when complaint is made.	Diphtheria, 1 case, 1 death.....
Derby .....	Chas. G. Barnhart, M. D.; Wm. Beaton, Secretary.	There is a regular sanitary inspection once a year. Action is taken also when complaint is made to Board.	Typhoid, 5 cases.....
Dungannon ....	Bingamin Spurr, Secretary.	No .....	Diphtheria, 50 cases .....
Dereham ... .	Jas. K. Creighton, M.D.; Henry Marshall, M.D.; Alex. Bell, Secretary.	Cheese factories and slaughter houses are inspected regularly. Other matters inspected only on complaint.	Diphtheria, 4 cases, 1 death; typhoid, 1 case; consumption, 3 cases, 3 deaths.
Dunn ... .....	A. G. MacCallum, M.D.; David Lyons, Secretary.	Only when complaint is made to Board.	Diphtheria, 1 case, 1 death.....
Drummond ....	No M.H.O.; T. B. Moore, Secretary.	None; action taken only on complaint.	None .....
Dysart .....	Wm. Giles, M. D.; W. Prust, Secretary.	No .....	None .....
Douro .....	J. K. Fraser, M.D.; Wm. O'Brien, Secretary.	Only when complaint is made to the Board.	Tuberculosis, 1 case, 1 death ....
Darlington .....	J. C. Mitchell, M. D.; R. Windatt, Secretary.	Once in the spring.....	Diphtheria, 2 cases; typhoid, 5 cases; tuberculosis, 6 cases.
Dawn ... .....	D. Galbraith, M.D.; J. M. Webster, Secretary.	No; action only on complaint.	Scarlatina, 1 case; diphtheria, 1 case; typhoid, 2 cases, 1 death.
Denbigh, Abinger and Ashby.	Chas. D. Doig, M. D.; Paul Stein, Secretary.	No; only when complaint is made.	None .....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
All communication with the public strictly prohibited by notice.	No .....	Yes. ....	No .....
Yes; by placard; no isolation hospital.	Don't know.....	No .....	Yes, once a year; no....
Yes; houses are placarded, all persons kept in and no outsiders allowed to enter. No isolation hospital has been opened.	No .....	Yes. ....	No .....
Isolation as far as can be adopted under circumstances; no hospital.	Anti-toxine is used in serious cases, results satisfactory.	No .....	No; no .....
Yes; no hospital.....	Yes, I believe it is very effective.	No .....	No; no .....
None .....	None .....	No .....	No .....
None .....	.....	.....	No; no .....
No; isolated in private room in their own house.	No .....	Yes .....	No; no .....
There has been no occasion; no hospital exists.	.....	Yes. ....	No; no .....
Only as directed by physician in attendance; no hospital.	Have not heard of such being used.	No .....	No .....
It would be if any should occur.	.....	It would be if required ..	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed? On evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Darling .....	No .....	From surface springs....	No .....	None.....
Derby.....	No .....	Wells and springs, usual depth of wells between 15 and 20 feet.	No inspection of dairy cows: no cases of tuberculosis; no tuberculin used.	Three; yes; don't know how offal is disposed of; no inspection of carcasses.
Dungannon .....	No .....	Wells, about 12 feet....	No .....	None.....
Dereham .....	Yes .....	Wells in all cases, probably 20 feet.	No; no .....	Four; licensed; offal consumed by swine; no inspection of carcasses.
Dunn .....	No .....	Stoned up cistern with troughs from roof, 16 feet deep.	No; no .....	No slaughter houses....
Drummond.....	Yes .....	Wells bored in the rock; no fever.	.....	Three slaughter houses; offal fed to swine; no licenses; no inspection.
Dysart .....	.....	Wells ..	No; no .....	None; no .....
Douro.....	Yes .....	Wells, 20 feet.....	No; no .....	Three; no; don't know; no.
Darlington .....	Not to teachers.	Wells, from 20 to 25 feet.	No; none reported..	Four; no license; kept in good condition; buried; no.
Dawn .....	No .....	Wells, depths from 18 to 90 feet.	No; no .....	None .....
Denbigh, A b- inger and Ash- by.	No . . . . .	Wells or springs from 5 to 15 feet.	No; no .....	None.....

TOWNSHIPS — *Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None.....	No.
No .....	No .....	None.....	None.
No .....	No .....	None.....	No.
No .....	No .....	No noxious trades except slaughter houses ; licensed annually.	None.
No .....	No .....	None.....	No.
No .....	No .....	None.....	None.
No .....	No .....	None.....	No.
No .....	No .....	Three slaughter houses ; no action taken in the matter.	No.
No .....	No .....	None.....	No.
No .....	No .....	None; only one cheese factory and a few saw mills in the township.	No.
There is not .....	There is none.....	We have none .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it reported at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Draper .....	S. Brigland, M.D.; David Cairns, Secretary.		Diphtheria, 1 case .....
Dalhousie and N. Sherbrooke.	A. Downing, M.D.; Walter Geddes, Secretary.	No; only when complaint is made.	Tuberculosis, 2 cases, 2 deaths...
Dorchester, N	A. Graham, M.D.; W. B. Lane, Secretary.		Diphtheria, 20 cases, 2 deaths; typhoid, 3 cases.
Dummer .....	— Couch, M. D.; J. B. James, Secretary.	Action taken only when complaint of nuisance is made to the Board.	Tuberculosis, 1 death .....
Dumfries, S ....	J. S. Addison, M.D.; Wm. Fleming, Secretary.	Yes; yes.....	Diphtheria, 1 case .....
Dunnett, etc....	H. Irwin, M.D.; F. B. Warren, Secretary.	Yes; twice a year .....	Diphtheria, 2 cases, 1 death; typhoid, 2 cases.
Dawson, Robert- son, etc.	No M. H. O.; John S. Hawkins, Secretary.	No; no; no .....	None .....
Dumfries, N....	A. Thomson, M. D.; Jos. Wrigley, Secretary.	Yes, of slaughter houses and cheese factories.	Typhoid, 4 cases, no deaths .....
Eramosa .....	G. F. McCullough, M.D.; Hugh Black, Secretary.		Scarlatina, 3 cases; diphtheria, 1 case; typhoid, 2 cases; consumption, 1 case.
Etobicoke'.....	J. M. Cotton, M.D.; A. Macpherson, Secretary.	By direction of Board when necessary.	Scarlatina, 5 families, 2 deaths; diphtheria, 3 families.
Esquesing .....	G. H. Kennedy, Secretary.	The Inspector makes an annual inspection on 1st May each year.	Scarlatina, 3 cases; diphtheria, 1 case.

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
The case of diphtheria was isolated from any visitor of any kind; no hospital.	None .....	Yes .....	No .....
Yes; house isolated and some one employed to take charge; no hospitals.	No; have no cases this year.	No; just under his instructions.	No; no .....
Yes; isolation and disinfection; no.	Yes; used in 20 cases, 18 recovered, 2 died of paralysis of heart 10 days after.	Yes .....	No; no .....
Yes; house placarded .....	Yes; results good.....	Yes .....	No; no .....
Yes; all communication with the family strictly forbidden; house placarded; no hospital.	No .....	Not always; generally left to the physician in attendance.	Yes; no.....
Yes; as far as possible in their own houses.	Anti-toxine not used in above cases.	Yes .....	Has not done so yet.....
No .....	No diphtheria as yet....	No Board; when Dr. Johnson attends a patient, yes.	No .....
No isolation hospital; cases sent to General Hospital, Galt.	Yes; no diphtheria reported.	Yes .....	No; no .....
As far as possible; no hospital.	Yes; in the one case reported; successfully treated with anti-toxine.	No; only when complaint is made inspection is made.	.....
Isolation carried out under direction of Board.	Anti-toxine was used with good results in two cases.	Under direction of M.H.O. and physician in attendance.	No; no .....
.....	Don't know; used in one case, results good.	No.....	Public school inspector looks after that.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Draper .....	Yes .....	Wells .....	There is no inspection required of dairy cows as there is no such disease here.	None .....
Dalhousie and N. Sherbrooke.	No .....	Wells and springs from 12 to 20 feet.	No; no .....	Four; no license; buried; no.
Dorchester, N. .	No .....	Wells, 40 feet.....	No; no .....	Six; yes; cooked and fed to hogs.
Dumner .....	Yes .....	Wells, 20 feet.....	No; no .....	Three slaughter houses; no; buried; no.
Dumfries, S ....	Yes .....	Wells, from 6 to 20 feet .	Yes; no.....	Two; yes; ordered to be buried or burned; no.
Dunnett, etc....	No .....	Wells and springs, 25 to 30 feet.	No .....	None .....
Dawson, Robertson, etc.	None .....	Wells and lake .....	No .....	None .....
Dumfries, N....	No .....	Springs .....	Yes .....	Nine slaughter houses; yes; boiled and fed to hogs.
Eramosa .....	Yes .....	Wells, about 30 feet .....	No .....	Two; not licensed; inspected if complaint is made; offal cooked and fed to animals.
Etobicoke .....	No .....	Wells, from 20 to 35 feet.	No; one case so far as I have heard of on a dairy farm; no report made to the Board.	Ten or twelve; not licensed; no systematic inspection.
Esquesing.....	We have not been called for any.	Wells .....	.....	Three; don't know; no.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated.	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
There is none to remove by the Board.	None.....	None.....	None.
No .....	No .....	None.....	No.
No .....	No .....	None.....	No.
No .....	No .....	None.....	No.
No .....	None.....	No .....	No.
No; each family looks after its own refuse.	No .....	None.....	No.
No; no .....	No; no .....	None.....	None.
No .....	No .....	.....	None
No systematic removal....	No.....	No.....	No.
At Long Branch, garbage and night soil are removed under direction of the M.H.O.	No. ....	None .....	No.
None .....	No.....	One tannery, which has been polluting the Limehouse as reported.	No.

## TOWNSHIPS.—Continued.

Name of Municipality	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it reported at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
lderslie .....	H. McIntyre, Sec .....	Yes; at repeated intervals every year.	Typhoid, 1 case.....
Ennismore .....	Michael Murray, Sec .....		No contagious diseases for a number of years back.
Egermont .....	A. L. Brown, M.D.; David Allan, Sec.	No; no; action is taken when complaint is made.	Diphtheria, 1 case; typhoid, 1 case; tuberculosis, 1 case, 1 death.
Emily .....	F. J. Bradd, M.D.; R. J. Grandy, Sec.	Action is taken only on complaint of nuisances to Board.	None .....
Enniskillen.....	Jno. Dunfield, M.D.; Geo. V. Wyant, Sec.	Action on complaint ....	Diphtheria, 3 cases, 2 deaths; tuberculosis, 1 case, 1 death.
Ekfrid .....	Dr. L. J. A. Hyttenranch, M.H.O.; H. McFarlane, Sec.	Action taken only on complaint.	Scarlatina, 1 case; diphtheria, 1 case; typhoid, 4 cases, 1 death.
Elma .....	J. Fullarton, Sec .....	No; action taken when complaint is made.	Tuberculosis, 2 cases, 2 deaths....
Embro .....	J. Ross, M.D.; E. Cody, Sec.	General inspection in spring; subsequent inspections when requested on complaint.	None .....
Edwardsburg...	S. C. McLean, M.D.; Jay J. Marsh, Sec.	Only when complaint is made.	Scarlatina, 2 cases; diphtheria, 12 cases, 3 deaths; tuberculosis, 7 cases, 7 deaths.
Ernestown . . .	J. L. Mabee, M.D.; E. O. Clark, Sec.	Only on complaint.....	Typhoid, 5 cases, 1 death , tuberculosis, 2 deaths.
Ellice .....	J. J. Paul, M.D.; Peter Smith, Sec.	Only when complaint is made.	Diphtheria, 1 case .....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; when cases arise .....	No.....	Yes.....	Yes; vaccination of school children is very generally attended to by the parents.
When notified; dwelling is placarded; no hospital.	.....	No.....	No.....
Simply isolated in infected dwelling; no isolation hospital.	.....	Yes.....	No.....
Houses placarded only.....	Yes.....	Yes.....	Schools inspected, but no certificate required.
Yes; patients are isolated in their own houses; also placards are used.	Not enough diphtheria to say; in the one case reported it saved the child's life.	Yes; except in typhoid cases, when it is left to the medical attendant.	No.....
Isolation is carried out when any case is known; no hospital.	We do not know of any being used.	Yes.....	No.....
None .....	None.....	Yes, when such diseases occur.	Only when requested; no certificate issued on vaccination; none issued this year.
Isolation in their houses as well as possible; no hospital.	It is used in most severe cases; it was used in the two fatal cases reported, but not till the disease was far advanced.	Not in all cases .....	I think not.....
Yes; houses quarantined; no hospital; cases sometimes sent to Kingston isolation hospital..	Yes; treatment nearly always successful.	Yes.....	No.....
Yes; the Board is quick to act and isolate when necessary.	We had but one case, it was then successfully used.	Yes; this is invariably done at the expense of the municipality.	They have not done so as yet.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Elderslie .....	Yes .....	Wells, 30 to 40 feet .....	No cases .....	Three or four; they are inspected by the Board of Health and required to keep premises properly.
Ennismore .....	Yes .....	.....	Never heard of any cases.	None .....
Egermont .....	Forms of contagious diseases are supplied to physicians only.	Wells, from 20 to 30 feet.	No; have not heard of any.	None .....
Emily .....	None .....	Wells, various depths ..	No .....	None .....
Enniskillen .....	No forms have been distributed this year.	Water is obtained from the rock at from 50 to 150 feet.	No inspector; no tuberculosis reported.	.....
Ekfrid .....	Yes .....	Wells, from 12 to 100 feet.	No .....	Four slaughter houses; not licensed; no inspection except on complaint.
Elma .....	No .....	Wells, from 14 to 100 feet.	.....	Four slaughter houses; not licensed; no inspection; no complaints; don't know about offal.
Embro .....	Yes .....	Wells, from 25 to 35 feet.	No; no; no .....	Two slaughter houses; offal fed to swine; no inspection.
Edwardsburg ...	I think not .....	Wells, 30 to 60 feet .....	No; no .....	One; no; no .....
Ernestown .....	Yes .....	.....	No; no cases or tests.	.....
Ellice .....	No .....	Wells, from 12 to 35 feet, drilling is now being resorted to.	None; no .....	Three slaughter houses; kept in good order, butchers are much more particular than formerly.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage, and night soil? If so on what basis of cost is the removal made? How is cost calculated?	None .....	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	None .....	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	None.
No.....	None .....	None .....	None .....	None.	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No.....	No.....	None .....	None .....	No.	
No.....	No.....	None .....	None .....	No.	
No.....	No.....	None .....	None .....	No.	
No, except in school premises; cost, \$12 for 180 pupils; dry earth closets.	No.....	None, except slaughter houses, these are viewed by M.H.O. at intervals.	One slaughter house, kept in good condition.	No prosecutions; several minor nuisances abated by notice and warning.	
Parties remove their own .	No.....			No.	
No.....	No.....	None .....	None .....	No.	
				No.	

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisances is made to Board.	Contagious diseases.
Erin . . . . .	Thos. Young, Sec . . . . .	No . . . . .	None reported . . . . .
Easthope, S . . .	R. Whiteman, M.D.; V. Stock, Sec.	. . . . .	Tuberculosis, 1 case, 1 death . . .
Elmsley, S . . .	W. T. Pratt, M.D.; Thos. O'Reilly, Sec.	. . . . .	Typhoid, 1 case . . . . .
Elzevir and Grimsthorpe.	Harper, M.D.; R. W. Miller, Secretary.	Action on complaint . . . . .	None . . . . .
Essa . . . . .	John W. Norris, M.D.; R. Banting, Secretary.	. . . . .	Tuberculosis, 6 cases . . . . .
Eastnor . . . . .	L. Brock, M.D.; Chas. W. W. Dalton, Secretary.	Action taken on complaint.	Nil . . . . .
Elizabethtown . . .	Sharpe, M.D.; John B. Barry, Secretary.	No; when a complaint is made it is looked after; only one complaint this year.	Typhoid, 2 cases, 2 deaths; tuberculosis, 6 deaths.
Eldon . . . . .	J. F. Ross, M.D.; John A. Jackson, Secretary.	There is no general inspection; action taken only on complaint.	Diphtheria, 2 cases, 1 death; scarlatina, 3 cases; tuberculosis, 1 death.
Fullarton . . . . .	W. J. Armstrong, M.D.; John Wilson, Sec.	Yes . . . . .	Tuberculosis, 1 case, 1 death . . .
Floss . . . . .	J. B. H. McClinton, M.D.; C. S. Burton, Sec.	Action is taken only when complaint is made.	Diphtheria, 7 cases, 1 death; tuberculosis, 6 cases, 6 deaths.
Ferris . . . . .	J. B. Carruthers, M.D.; M. Nalon, Sec.	Only when complaints are made to the Board.	None . . . . .

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	No .....	Is diphtheria anti-toxino in common use by physicians? Give results of treatment in all cases where possible.	No.....	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Yes .....	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from now school children each year?
None necessary so far.....	No .....	Not required so far.....	Not required so far.....		No ; no .....	
Isolation in their own houses; no hospital.	None used.....				I do not think that the Board has made any inspection of the schools.	
No .....	Don't know .....				No .....	
Not needed .....	None .....	None requiring interference of Board.			When notified of any unsanitary premises.	
No hospital .....		No cases this year .....		Occasional.....		
No .....	Don't know .....	Don't think it is .....			No .....	
No ; the house in which the disease exists is placarded.		Yes .....			No .....	
Yes ; placards used ; no hospital.	No .....	Yes .....			Yes ; no....	
Yes ; by placarding thereby preventing communication.	Yes ; one death and five recoveries where anti-toxine was used.	Yes .....			No .....	
Yes .....	Yes .....	Yes .....			No .....	

TOWNSHIPS.—*Continued.*

Name of Municipality	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed? Are they kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcases by any officer of the Board?
Erin .....	No.....	Wells, generally.....	No.....	Two slaughter houses ..
Easthope, S .....	Yes.....	Wells, from 10 to 40 feet.	No ; one only : no .. *	Three ; no : mostly fed to pigs or used as manure.
Elmsley, S .....		Drilled wells through rock from 25 to 40 feet.	None.....	One slaughter house; not licensed, but kept in good condition.
Elzevir and Grimsthorpe.	Yes.....	Wells about 15 feet ....	No ; no .. .....	None.....
Essa .....	No .....	Wells mostly .....	No ; no .. .....	Two slaughter houses on a stream; offal buried; yes.
Eastnor .....		Wells ; depths vary at each school; no general basis.	No regular dairy ; no cases.	Not licensed, but kept at a considerable distance from inhabited dwellings.
Elizabethtown .....	No .....	Wells from 4 to 100 feet.	Tuberculin test has been made at dairies supplying the town of Brockville; no tuberculosis found.	Two that I know of....
Eldon .. . . . .	No .. . . . .	Wells from 15 to 50 feet.	No inspection .....	One slaughter house; not licensed; no inspection. *
Fullarton .....	No .. . . . .	Wells from 15 to 30 feet.	No ; none reported..	Two ; not licensed ; turned into manure; no inspection of carcases.
Floss .....	No .. . . . .	Wells about 14 feet ....	No .. . . . .	Three; no license has been given ; no.
Ferris.....	No .. . . . .	Wells .. . . . .	No .. . . . .	None.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	No.	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	No.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	No.	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No.....	No.....	No.....	No.....	No.	.	
No.....	No.....	None .....	None .....	None.	None.	
None.....	None .....	None .....	None .....	None.	None.	
No .....	No .....	No .....	No .....	No.	None.	
Yes; private owners are required to remove all noxious smells and keep clean their premises.	No .....	Butcher; no license .....	Butcher; no license .....	No.	None.	
.....	.....	.....	.....	.....	None.	
No .....	No .....	None .....	None .....	None.	None.	
No .....	No .....	One dynamite factory ; 1 butcher ; not licensed.	One dynamite factory ; 1 butcher ; not licensed.	None.	None.	
No .....	No .....	None .....	None .....	No.	No.	
No .....	No .....	None .....	None .....	No.	No.	
No .....	No .....	None .....	None .....	No.	No.	

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Finch .....	Dr. Marcillus, J. A. Cockburn, Sec.	Action is only taken when complaint is made.	Scarlatina, 6 cases, 1 death; diphtheria, 20 cases, 5 deaths; typhoid, 5 cases; tuberculosis, 1 case, 1 death.
Faraday .....	Dr. Levett, Jas. Siddons, Sec.	.....	Diphtheria, 2 cases, 1 death . . . . .
Fitzroy .....	Thos. Wilson, M. D.; A. Murphy, Sec.	Occasional sanitary inspection; when inspection is considered necessary.	Diphtheria, 15 cases, 1 death . . . . .
Flamboro' East.	A. C. Jones, M. D.; J. Bremner, Sec.	No; no; only when complaint is made.	1 typhoid; no death . . . . .
Gordon .....	Samuel Hall, M. D., and John Nellis, M. D.; Robt. Brett, Sec.	When complaint is made..	None . . . . .
Georgina .....	C. T. Noble, M. D.; Donald Ego, Sec.	Action taken only when complaint is made.	Diphtheria, 20 cases, 1 death; tuberculosis, 2 deaths.
Glenelg .....	Jas. Gun, M. D.; John S. Black, Sec.	The township is divided into five divisions for sanitary purposes, and each member of the board looks after his own division.	Scarlatina, 3 cases; diphtheria, 1 case, 1 death.
Goulbourn .....	G. C. Richardson, M. D., A. Abbott, Sec.	Only when complaint is made.	Scarlatina, 15 cases; diphtheria, 2 cases; typhoid, 3 cases, 2 deaths; tuberculosis, 2 cases, 2 deaths.
Gosfield, S .....	Wm. McKenzie, M. D.; G. W. Coatsworth, Sec.	Action taken only when complaint of nuisance is made to the board.	Scarlatina, 2 cases; tuberculosis, 1 case, 1 death.
Glanford .....	Cyrus Smith, M. D.; Wm. Calder, Sec.	Inspection made on complaint and when thought required.	Tuberculosis, 2 deaths. . . . .
Grimsby, North.	J. W. Alway, M. D.; W. H. Nelles, Sec.	Action taken only when complaint to board is made.	None . . . . .

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Dwellings are placarded and patient isolated in the house; no hospital.	In use by Dr. Marselus and Dr. Crane; they report good results; lost only one case when it was used at once.	Yes, by the M. H. O....	No .....
Yes; kept in the house and the Sanitary Inspector attends to their wants.	Not used here .....	Yes .....	No .....
Yes; houses placarded; no hospital.	Yes; anti - toxine has proved to be a great benefit.	Yes .....	No ; no .....
Can't say; no isolation hospital.	Cannot say .....	No .....	No .....
.....	.....	No.....	No..
Yes; patients isolated in their own houses under supervision of attending physician.	No.....	Yes, or else attending physician.	No ; no.
Yes; under direction of physicians attending cases.	No.....	Yes ; under direction of physicians attending cases.	No; it has not been found necessary.
Yes ; isolated in farm houses.	Yes ; good .....	Yes.....	No ; no.
Yes ; house quarantined ; no hospital.	Have not had a case of diphtheria this year.	Yes .....	No..
No.....	.....	.....	No ; no.
Houses placarded ; no hospital.	I think antitoxine is used when required.	Yes .....	No.

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Finch .....	No .....	Wells about 25 feet .....	No .....	Three small ones; no inspection.
Faraday.....	No .....	School water got from wells at different places; no wells at school.	No .....	None.....
Fitzroy .....	Yes .....	Wells; ranging from 10 to 50 feet.	No; don't know; test has not been used.	One; no; don't know; no.
Flamboro' East.	No .....	Mostly wells, 10 to 20 feet.	No .....	Four; no license; no ..
Gordon .....	No .....	Wells; about 15 feet....	No .....	No .....
Georgina .....	Yes .....	Wells .....	No .....	None. ....
Glenelg .....	These have been supplied to physicians and M. H. O. only.	Spring wells.....	None .....	None.....
Goulbourn.....	No .....	Wells .....	No; no; no .....	None.....
Gosfield, S.....	Yes; to M.H.O.	Wells, varying in depth.	None reported.....	None that I know of...
Glanford .....	Some forms have been supplied to physicians.	Wells .....	No .....	There are 7 not licensed, but permitted while in good condition; carcasses not inspected; usually sold in Hamilton.
Grimsby, N .....	No .....	Wells; about 20 feet....	No .....	No.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewer.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	None.
None .....	No .....	None .....	No.
Yes; each party removes their own garbage; not calculated.	No .....	None .....	No.
	No .....		No
No .....	No .....		No.
		None..	No.
No .....	No .....	None..	No.
No .....	No .....	None..	No.
No .....	No .....	None..	No.
No .....	No .....	None..	No.
No .....	No .....	None licensed .....	No.
No .....	No .....	None..	None.

## TOWNSHIPS.—Continued.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Garafraxa, East.	Skippen, M. D.; John Preston, Sec.	On complaint of nuisance.	None.....
Grattan.....	M. J. Maloney, M. D.; Wm. Gorman, Sec.	No; no; action only taken when complaint of nuisance is made to board.	None.....
Grey.....	Malcolm Ferguson, M.D.; Wm. Spence, Sec.	Action taken only when complaint is made to the board.	Diphtheria, 1 case; tuberculosis, 3 cases, 3 deaths.
Gwillimbury, West....	No M. H. O.; Z. Evans, Sec.	Only when complaint is made.	Diphtheria, a few cases of a mild type; typhoid, 1 case.
Gower, South...	No M. H. O.; Elijah Pelton, Sec.	No regular sanitary inspection; action taken only when complaint is made to board.	None .....
Grantham.....	J. Jessop, M.D.; L. S. Bessy, Sec.	When complaint is made..	Scarlatina, 8 cases, 1 death; tuberculosis, 3 cases, 3 deaths.
Glamorgan.....	D. Williams, Sec. ....	When complaint is made..	General freedom from contagious diseases.
Garden Island..	R. W. Garrett, M.D.; Richard Raymond, Sec.	Yes; each half year .....	Typhoid, 4 cases.....
Garafraxa W... .	Jas. Dow, M.D.; Jas. Kennedy, Sec.	Yes; repeated at intervals during the year.	Scarlatina, 3 cases; diphtheria, 6 cases.
Gosfield, North..	J. W. Brien, M.D.; Isaac J. Cottam, Sec.	Action taken on complaint to Board.	Scarlatina, 1 case, 1 death; diphtheria, 4 cases, 1 death; typhoid, 3 cases.
Galway and Cavendish.	No M. H. O.; Patrick Collins, Sec.	.....	None .....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; houses placarded and watch appointed.	Never been tested in the municipality.	Yes .....	No: no.....
Yes; no isolation hospital: individual isolation.	No.....	Yes .....	No.....
Yes, when necessary; we have no isolation hospital.	Yes ; with good results.	Yes .....	Yes ; inspection is ma of public schools, but no certificate of vaccination required from new school children.
No isolation hospital; I think the doctors do their duty as far as possible in that respect.	Don't know .....	No.....	No.....
No contagious diseases; no hospital.	I can't say.....	No.....	No ; no.....
Yes; no hospital; houses placarded and general precautions taken.	No; so far as known to the board.	Yes .....	No ; no.....
Yes; no hospital .....			
Yes; any contagious cases are removed to the Kingston Hospital or Hotel Dieu.		Yes .....	
Yes; no hospital; patients isolated in their own dwellings; rooms well ventilated; houses placarded and disinfected.	No .....	Not under personal supervision, only under instructions from Board.	Yes ; no.....
Yes; simple quarantine, placarding, isolation and subsequent cleaning and disinfecting.	Yes ; very favourable in all cases.	Yes .....	No ; no .....

## TOWNSHIPS.—Continued.

Name of Municipality	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed or evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Garafraxa .....	No .....	Wells, from 12 to 100 feet.	No .....	None .....
Grattan .....	No .....	Wells, about 12 feet.....	No ; no .....	One; not licensed, but kept in fair sanitary condition; no systematic inspection.
Grey .....	No .....	Wells, about 16 feet.....	No .....	One; yes, licensed; the offal is buried; no inspection.
Gwillimbury, West.. ....	No .....	Wells, from 30 to 50 feet.	No ; none that I am aware of.	None .....
Gower. South ..	No .....	School water procured from neighboring farms.	No ; don't know ; no.	No .....
Grantham .....	No .....	Wells .....	No ; no .....	Six ; not licensed ; offal fed to hogs; no inspection of carcasses by any officer of the board.
Glamorgan .....	No .....	Wells .....	.....	Eight .....
Garden Island ..	.....	River St. Lawrence .....	.....	None ; meat supplied..
Garafraxa, W...	Yes .....	Wells ; 20 feet.....	No dairies in township.	One not licensed ; offal is burned; systematic inspection is carried out by sanitary inspector.
Gosfield, North.	No .....	Wells ; 7 to 10 feet on gravel ridge, 50 to 100 feet in other parts of township.	No ; have no information of a case of tuberculosis or test being made.	5 ; not licensed ; don't know how offal is disposed of; no inspection.
Galway and Cavendish.	.....	.....	.....	.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is the cost calculated.	Is there a public sewerage system? If so what proportion of houses to whom is connected with public sewers?	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated.	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the cases and results of same.
No .....	No .....	None.....	None.
No .....	No .....	None.....	None.
No .....	No .....	None.....	No.
No .....	No .....	Not any.....	No.
No .....	No .....	No .....	No.
Generally removed by owners.	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes: each householder removes all garbage and night soil at his own expense.	No .....	None .....	No.
Yes.....	No .....	None .....	No.
No; each householder supposed to attend to the matter on his own premises.	No .....	None, except the business at the above mentioned slaughter houses.	No.

TOWNSHIPS — *Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Gwillimbury, E.	No M. H. O.; A. J. Hughes, Sec.	Inspection made yearly and oftener in the village, and always upon complaint.	Scarlatina, 12 cases; typhoid, 4 cases; tuberculosis 2 cases, 1 death.
Griffith and Matawachan.	John Holly, Sec .....	When complaint of nuisance is made.	None .....
Gloucester .....	R. A. Kennedy, M.D. ....	General inspection early in May by inspectors, principally among villages, examining slaughter houses, piggeries, etc., in accordance with Public Health Act.	Diphtheria, 7 cases, 2 deaths .....
Guelph .....	John Clark, M.D.; John McCormindale, Sec.	Sanitary inspection is made at intervals and complaints regarding nuisances promptly attended to.	None .....
Greenock .....	Dr. Morrison, J. W. McNabb, Sec.	Yes; inspection made at regular intervals.	2 typhoid, no deaths; 1 consumption.
Gainsboro .....	Dr. Colver, S. Kennedy, Sec.	Yes; action on complaint.	3 scarlatina, no deaths; 4 diphtheria, 1 death; 1 typhoid.
Grimsby, S. ....	N. P. Henning, M.D.; Ed. Irvine.	Yes; action taken when complaint is made.	Scarlatina, 2 cases, 2 deaths; typhoid, 1 case.
Jocelyn .....	No M. H. O.; J. G. Reesor, Sec.	No .....	None .....
Joly .....	No M. H. O.; T. Winters, Sec.	Only as required....	None .....
Keewatin Tp...	Dr. Aylesworth.....	Yearly, and when complaint is made to Board.	23 scarlatina, 3 deaths .....
Kinloss .....	J. S. Tennant, M.D.; Peter Reid, Sec.	Only when complaint is made.	2 consumption, 2 deaths .....
Kaladar .....	No M. H. O.; Moses Lessard, Sec.	Action taken only when complaint is made to the Board.	5 diphtheria .....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists?	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes: no hospital, but in all cases houses are quarantined.	Board has no definite information.	Yes .....	No .....
No hospital; no contagious diseases	No .....	No .....	No .....
No hospital but patients are removed to Ottawa Hospital where desirable; anti-toxine is used.	No .....		About 30 .....
Yes; and cases are reported to school teachers and no one from infected houses can attend until a certificate is given by attending physician; no hospital.	Yes; good results have been reported.	Yes .....	No inspection by the Board but at times by the inspector: Yes, teachers must see that all pupils have been vaccinated.
Yes; isolation systematically carried out by placarding and separating patients.	Not in common use; no cases.	Yes .....	Yes .....
No .....	No .....	No .....	No; no .....
Isolated in room at home....	No cases this year; used when necessary.	No .....	No; no .....
No hospital .....	No cases .....	No cases .....	No; no .....
No .....		Yes .....	No .....
Isolation strictly enforced...	No cases .....	Yes .....	No .....
Yes.....	Do not know .....	Yes .....	No; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Gwillimbury, E.	Forms are supplied to M.D's.	Wells; 20 to 40 feet . . . .	No; have no knowledge of any cases in the township.	8; permission is given upon being kept in proper condition.
Griffith and Matawachan.	No . . . . .	Springs and wells . . . . .	No; no; no . . . . .	There are none . . . . .
Gloucester . . . . .	Wells; every kind of soil.			
Guelph . . . . .	No medical men in township.	Well water; average 35 feet.	Yes; by city inspector.	5; no license, but are kept fairly clean; offal fed to hogs; no.
Greenock . . . . .	Yes, all forms are supplied.	Wells; 16 to 20 feet . . . .	No; don't know . . . .	9; 8 licensed; offal boiled and fed to hogs, some buried.
Gainsboro . . . . .	No; no . . . . .		No; no . . . . .	2 not licensed . . . . .
Grimsby, S. . . . .	Yes . . . . .	Wells . . . . .	No; no . . . . .	None . . . . .
Jocelyn . . . . .		Wells . . . . .	No . . . . .	None . . . . .
Joly . . . . .	No . . . . .	No well on grounds, water on next farm.	No; no . . . . .	None . . . . .
Keewatin Tp. . . . .	No . . . . .	Lake of the Woods . . . . .	No . . . . .	1; not licensed . . . . .
Kinloss . . . . .	No . . . . .	From springs and wells; 15 to 50 ft.	When necessary . . . .	No . . . . .
Kaladar . . . . .	No . . . . .	Springs . . . . .	No . . . . .	1; no; no . . . . .

## TOWNSHIP.—Continued.

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses in the whole is connected with public sewers?	State no. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	None.
Not inspected by local Board, but all cattle are tested with tuberculin and very few cases found.	None licensed .....	.....	None licensed.
Removed on to the farm and plowed in with other manure.	None in township .....	None .....	None.
No .....	No .....	No .....	No.
No .....	No .....	None .....	None.
.....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	.....	None .....	No.
Garbage and night soil removed once a year at \$4 per load.	No .....	None .....	None.
None .....	None .....	None .....	None.
.....	.....	.....	No; no.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious disease.
King .....	T. J. Norman, M. D.; C. Patterson, Sec. ....	Action taken only when complaint is made.	No cases.....
Kennebec .....	J. R. Helm, M. D.; A. Osborne, Sec.	Yearly, and on complaint..	Two typhoid, 1 death .....
Kincardine .....	T. Bradley, M.D.; R. B. Campbell, Sec.	Action taken when complaint is made.	Three typhoid, 1 death; 3 consumption, 3 deaths.
Kingston .....	No M. H. O ; J. Simpson, Sec.	Only when complaint is made.	One consumption, 1 death .....
Kitley .....	M. L. Dixon, M.D.; J. M. Edgar.	Only on complaint.....	.....
Luther, West....	W. H. Philp, M.D.; W. Duncan, Sec.	Only when complaint is made.	Scarlatina 2, no deaths.....
Limerick .....	Dr. Kelly, J. W. Ham, Sec.	No .....	Diphtheria, 2 deaths.....
Laxton, Digby and Longford.	Dr. Blanchard, W. Maxwell, Sec.	When complaint is made..	Typhoid fever, 1 death.....
Front of Leeds and Lansdowne	Wm. Meikle, M.D.; J. D. W. Darling, Sec.	Only when complaint is made.	Ten consumption .....
Lavant .....	Dr. Kilborn, J. M. Brown-ing, Sec.	No ; no .....	None .....
Lanark .....	No M. H. O.; A. Rankin, Sec.	No ; no ; yes .....	One family scarlatina, no deaths; 3 families diphtheria, 1 death; consumption, 6 deaths.
Luther, East ...	Dr Hopkins, J. D. Watson, Sec.	Yes ; repeated.....	None .....
Logan.....	A. D. Smith, M.D; F. Jacob, Sec.	Action taken only when complaint is made.	Six typhoid, 1 death; 2 consumption, 2 deaths.
Labo .....	P. S. Graham, M.D.; E. R. Barclay, Sec.	Action taken only when complaint is made.	Two scarlatina, no deaths; 1 diphtheria, no deaths; 1 typhoid, no deaths; 1 consumption, no deaths.
Hagerman .....	C. O'Gorman, M. D.; Frank McFie, Sec.	Annual inspection in May.	None .....

TOWNSHIPS — *Continued*

Is isolation of contagious disease systematically carried out? State methods adopted and whether any isolation hospital exists.		Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
House placarded.....	None .....	Yes .....	No ; no .....	
Yes, when necessary .....		No .....	No .....	
Houses are placarded .....	Cannot say .....	Yes .....	No .....	
None .....	No cases .....		No ; no .....	
.....				
Isolated; no hospital.....	Don't know .....	No .....	No ; no .....	
.....			No .....	
Yes; no isolation hospital.....		Yes .....	No .....	
No .....	Yes .....	No .....	No ; no .....	
No hospital .....			No ; no .....	
No .....	No .....	Yes .....	No .....	
Yes; no hospital .....	No .....	Yes .....	No ; no .....	
No ; no hospital .....			No ; no .....	
Yes; no hospital .....	No .....	No .....	No .....	
Houses placarded if any epidemic; no isolated hospital.	No, but M. H. O. would use it if provided with it.	Instructions are given by the M. H. O.	Yes; there has been no general vaccination; if points were supplied M. H. O. would vaccinate in this and surrounding townships.	

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcases by any officer of the Board?
King .....	No .....	Wells ; 15 to 50 ft .....	No dairy inspector.....	Ten ; not licensed .....
Kennebec .....	No .....	Springs and wells ; 10 to 20 ft.	No .....	None .....
Kincardine .....	No .....	Wells ; about 20 ft .....	No ; no .....	Two ; not licensed .....
Kingston .....	No .....	Wells ; 12 to 50 ft .....	No ; no .....	No inspection .....
Kitley .....				
Luther West .....	No .....	Mostly wells ; depth not known.	No ; no .....	None.....
Limerick .....	No .....	No .....	No .....	None.....
Laxton, Digby and Longford.	Yes .....	Wells ; from 25 ft. ....	No .....	None.....
Front of Leeds and Lansdowne	No .....	Wells ; 12 ft.....	No ; yes ; no .....	No .....
Lavant.....	No .....	Spring water .....	No ; no cases.....	None.....
Lanark.....	Supplied by former M. H. O.	Springs and wells ; average 15 ft.	No .....	None.....
Luther, East .....	No .....	On school ground ; 200 ft. deep.	No ; no ; no.....	Two ; fed to hogs ; no..
Logan .....	None .....	Wells ; 15 to 70 ft .....	No ; no .....	None.....
Lobo .....	Yes.....	Wells ; 10 to 55 ft .....	No ; no .....	One ; no ; no.....
Hagerman.....	If authorized by Prov. Board of Health.	Lakes and wells ; wells average 12 feet.	No .....	None ; farmers kill on their own premises.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	None.
.....	No .....	None .....	No.
No .....	No .....	No .....	No.
A nuisance where City of Kingston deposits its garbage.	No .....	No .....	None.
.....	.....	.....	.....
Not required .....	No .....	None .....	3 school houses reported in unsanitary condition: evil remedied by M.H.O.
No .....	No .....	.....	No.
Cannot say .....	None .....	None .....	No.
No .....	No .....	None .....	1 complaint; cause removed
No removal by board.....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes, in the village; not much attended to in the township generally.	None whatever .....	None. ....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Hillier .....	J. B. Ruttan, M.D.; for eastern div. of township; J. S. Thornton, M.D.; for western div. of township; Stephen Nease, Sec.	No : no ; yes .....	Two of consumption .....
Howland .....	No M. H. O.; Andrew Russell, Sec.	Only when complaints are made to board.	One supposed case of typhoid ....
Houghton .....	J. M Tweedale, M.D.; John Boyle, Sec.	No ; no .....	About 25 cases diphtheria, and 6 deaths resulting.
Hamilton .....	No M. H. O.; J. D. Stewart, Sec.	No general inspection this year; only when complaints are made to officer.	Four diphtheria, no deaths; 4 consumption, 4 deaths.
Hullett. ....	Thos. Agnew, M.D.; James Campbell, Sec.	Yes, when complaint is made.	None.....
Howe Island....	Dr. Ryan, Michael Melville, Sec.	.....	Diphtheria, 1 death.....
Hibbert .....	No M. H. O.; T. Carroll, Sec.	.....	One case scarlatina reported ; no deaths.
Hilton .....	J. H. King, M. D.; W. E. Whybourn.	Action only taken when complaint is made.	None.....
Hawkesbury, East. ....	No M. H. O.; Paul Labrosse, Sec.	Action only when complaint made.	Two scarlatina, no deaths; 4 diphtheria, 2 deaths; 2 typhoid, no deaths; 11 consumption, 8 deaths.
Hinchinbrook...	Lockhart, M. D.; Jas. Hamilton, Sec.	No ; only when complaint is made.	None.....
Harvey .....	C. E. Bonnell, M.D.; J. S. Cairnduff, Sec.	.....	Scarlatina very prevalent in summer; no deaths.
Horton.....	Dr. Mann, Geo. Eady, jun., Sec.	No.....	One consumption, 1 death .....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
None ; no . . . . .	Yes .....	Yes, by M. H. O. . . . .	No ; no . . . . .
None required this year . . . . .	No cases.....	No cases.....	Not this year.....
Yes ; houses are quarantined when it is thought necessary.	Some physicians use it and some do not; it is generally successful.	No .....	No. . . . .
No isolation hospital; when necessary houses are placarded and disinfectants used.	Don't know what is used.	Yes, in every case.....	No. . . . .
None.....	No, not any.....	Board of trustees notified of condition yearly.	
.....	Used by physician.....	Yes .....	No. . . . .
No cases ; no . . . . .	Yes .....	Yes .....	Yes . . . . .
No action taken; no contagious diseases	No .....	Yes .....	No. . . . .
Yes ; houses placarded.....	No .....	No ; M.Ds. prescribe what is required.	No ; no. . . . .
Yes ; when they occur . . . . .	No cases.....	Yes .....	No. . . . .
Yes ; houses placarded ; no isolation hospital.	No .....	Yes .....	Yes . . . . .
Yes.....	Yes.....	Yes .....	

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Hillier .....	No .....	Generally wells; cannot give depth.	No ; no .....	One ; no ; fed to hogs; no.
Howland .....	No .....		No .....	Nnone .....
Houghton .....	No .....	Wells ; from 10 to 30 feet.	No ; no .....	None.....
Hamilton .....	No.....	Wells ; 12 to 75 feet.....	No inspector ; no Four ; licensed cases reported.	
Hullet .....	No.....	Wells ; about 25 feet....	No .....	Two ; no ; no.....
Howe Island ...	No.....	The St. Lawrence River; No pure water.	No .....	None.....
Hibbert .....	No.....	Wells ; 25 to 30 feet.....	No ; no .....	None.....
Hilton ... .....	No.....	Spring creek .....	No inspector ; no tuberculosis having occurred.	None .....
Hawkesbury, East .....	Yes, to M. Ds... .	Wells and rivers; wells from 10 to 20 feet,	No ; no .....	Five ; not licensed ; no.
Hinchinbrook ..	No.....	Well and spring ; well 6 feet deep.	No ; no .....	None .....
Harvey .....	Yes .....	Mostly wells ; 10 to 15 feet deep.	No ; no .....	None.....
Horton .....	Yea .....	Wells .....	No .....	Two ; kept in good condition.

## TOWNSHIPS.—Continued.

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	State No., and kinds of noxious trade. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case and results of same.
No .....	No .....	Manufacture of oil from fish; permit from council.	No.
No .....	No .....	None.....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes .....	None.....	None .....	None.
No .....	No .....	None .....	None.
No .....	No .....	None .....	None.
No .....	No .....	None .....	No.
Yes, of garbage ..	No .....	None .....	None.
No .....	No .....	None .....	No

## TOWNSHIPS.—Continued.

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint is made to Board?	Contagious diseases.
Hallam.....	G. F. Jones, M. D.; C. S. Draper, Sec.	.....	Three typhoid, none; 1 consumption, none.
Himsworth, South .....	J. A. Porter, M.D.; A. E. Trussler, Sec.	Yes; once yearly.....	One diphtheria .....
Hawkesbury, West.....	D. J. McIntosh, M.D.; F. W. Thistlethwaite, Sec.	Once a year, and other times when necessary.	Four diphtheria, 1 death; tuberculosis, 10 deaths.
Humberstone .....	M. J. Haney, M.D.; A. E. Near, Sec.	Inspection only when complaints are made.	Scarlatina, 8, no deaths; diphtheria, 3, 1 death; consumption, 3, 2 deaths.
Huron .....	D. A. McCrimmon, M.D.; Angus Martyn, Sec.	Yes; only when complaint is made.	Four diphtheria, 1 death; 3 typhoid, no deaths; 3 tuberculosis, 2 deaths.
Hay .....	B. Campbell, M.D.; Fred. Hess, Sec.	Yes; inspection of school houses yearly.	Seven scarlatina, 1 death; 2 diphtheria, no deaths; 35 typhoid, 2 deaths.
Hallowell .....	Dr. Jory.....	Inspection in May yearly.	Scarlatina, 1; diphtheria, 7 consumption, 2.
Hungerford .....	Mather, M. D.; T. Graham, Sec.	No.....	None.....
Harwich .....	S. G. Story, M.D.; W. R. Fellows, Sec.	No.....	Typhoid, 4, deaths, 1; consumption, 11, deaths, 11.
Howick .....	A. M. Spence, M. D.; Lizzie Walker, Sec.	Yes; when complaint is made.	None.....
Howard .....	D. Marr, M.D.; Geo. McDonald.	Action taken on complaint, but use all precautions.	Diphtheria, a few cases, 1 death; tuberculosis, 1 case, 1 death.
Huntley....	G. H. Groves, M.D.; John Argue.	.....	Diphtheria, 5 cases, no deaths; a few mild cases of scarlatina.

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board.	Does the Board make systematic inspection of the public school? Does it require a certificate of vaccination from new children each year?
When necessary : no hospital	No .....	When necessary .....	No ; no .....
Yes.....	No .....	Yes .....	No .....
Yes; no hospital .....	Yes; results satisfactory	Yes .....	No .....
Yes; no hospital .....	No .....	No .....	No .....
Yes; by isolation and disinfectants.	No .....	Yes .....	No .....
Yes; no hospital .....	No .....	Yes .....	Yes ; no .....
Yes, house placarded .....	Yes; good results .....	Yes .....	No ; no .....
No.....	No .....	No .....	No ; no .....
Yes.....	Yes; satisfactory.....	Yes .....	No ; no .....
Yes.....	No .....	Yes .....	No ; no .....
Yes .....	Yes .....	Yes .....	No ; no .....
Yes .....	Yes .....	Yes .....	No ; no .....

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the board?
Hallam .....	Yes .....	Wells ; 15 to 20 feet deep.	No .....	One ; no ; no .....
Himsworth, South .....	No .....	Wells ; 8 to 10 feet.....	No ; no .....	Two ; not licensed .....
Hawkesbury, West .....	Yes .. . . .	Wells ; 15 to 20 feet ..	No .....	One ; not licensed .....
Humberstone ..	No .....	Wells ; 10 to 30 feet.....	No ; no .....	Four .....
Huron .....	Yes .....	Wells ; average 30 feet..	No ; no .....	Two ; not licensed .....
Hay .....	No .....	Wells .....	.....	.....
Hallowell .....	No .....	Wells ; 20 feet.....	No ; no .....	Four ; not licensed ; no .....
Hungerford....	No .. . . .	Wells ; 15 feet.....	No ; no .....	One .....
Harwich .....	No .. . . .	Wells, 10 feet; artesian wells, 150 feet.	No .....	Four ; no .....
Howick .....	No .. . . .	Springs .....	No ; no .....	Two ; no ; fed to hogs..
Howard .....	M. H. O. only..	.....	No ; no .....	Two .....
Huntley .....	.....	.....	.....	.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers?	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
Yes .....	No .....	None.....	No.
No .....	No .....	None.....	No.
No .....	No .....	None.....	None.
No .....	No .....	None.....	None.
No; in village of Ripley night-soil is removed at cost of party concerned.	Yes, in village of Ripley; None.....	None.....	No.
.....	.....	.....	.....
No . . . . .	No .....	Three cheese factories, one tannery.	None.
No . . . . .	No .....	None.....	No.
No . . . . .	No .....	None ,.....	None.
By householder.....	No .....	None.....	No.
.....	.....	.....	.....
.....	.....	.....	.....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
London .....	D. G. McNeill, M. D.; James Grant, Sec.	Only when complaint is made.	Twenty scarlatina; 9 diphtheria, 3 deaths; 8 typhoid; 3 consumption, 3 deaths.
Longueuil .....	No M. H. O.; Max Pilon, Sec.	No; no; no complaint.....	Two consumption, 2 deaths.....
Lac Seul .....	T. Hanson, M. D.; Thos. H. Pritchard, Sec.	No .....	Ten tuberculosis, 4 deaths .....
Mara .....	Wm. Gilpin, M. D.; W. R. McPhee.	Action taken when complaint is made; inspection is made in spring.	Diphtheria, 1 case; tuberculosis, 4 cases, 3 deaths.
Maryborough...	J. J. Cassidy, M. D.; E. Dynes, Sec.	No; no; only when complaint is made.	Ten diphtheria, 2 deaths; 5 typhoid; 3 consumption, 3 deaths.
Marysburg, N ...	J. W. Wright, M.D.; Levi Williams, Sec.	Action taken when complaint is made to board.	One consumption; 1 death.....
Marysburg, S ...	H. Bredin, M. D.; W. B. Head, Sec.	Inspection by M. H. O.....	None .....
Medora and Wood .....	No M. H. O.; H. C. Guy, Sec.	General inspection in spring; repeated when complaint is made.	None .....
Monaghan, N ...	N. I. Grear, M. D.; G. W. Bennett, Sec.	Yes; action taken on complaint.	One diphtheria . .....
Monaghan, S ...	W. Montgomery, M. D.; Alfred Maycock, Sec.	No; action taken when complaint is made to board.	Seven diphtheria, 2 deaths; 1 consumption, 1 death.
Minden .....	Dr. Curry, S. F. Stinson, Sec.	Yes; yes .....	Eleven diphtheria, no deaths....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried on? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No; only by placarding the house and removing patients to the hospital; no isolation hospital.	No .....	No .....	No .....
No .....			No .....
No .....	No .....	No .....	No .....
Yes.....	Yes; physicians consider it very helpful.	No .....	No ; no .....
Yes; patients isolated; disinfected by usual methods.	Yes; good results in all cases not too far advanced.	Yes .....	No ; no .....
None to isolate .....	Not required .....	Not required .....	No .....
			No ; no .....
Yes; no hospital .....	No .....	Yes .....	Yes ; no .....
Yes; houses placarded; patient removed to Nicholl's hospital.	Don't know .....	No .....	No ; no .....
House placarded; no isolation hospital.	Our M. H. O. uses it with good results; every case a success when used early in case.	Yes .....	No ; no .....
Yes; isolated; no hospital..	Yes; decidedly favourable.	Yes ; by M. H. O .....	Yes ; by vaccination ; no

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water-bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the board.
London . . . . .	No . . . . .	Wells and springs; wells 10 to 50 ft.	No ; no . . . . .	Thirty ; yes ; fed to hogs ; no.
Longueuil . . . . .	No . . . . .		No . . . . .	Two ; no . . . . .
Lac Seul . . . . .	No . . . . .	From lake . . . . .	No . . . . .	None . . . . .
Mara . . . . .	No . . . . .	Wells, from 12 to 75 ft . . . . .	No ; no . . . . .	Three ; no ; buried ; no.
Maryborough . . . . .	No . . . . .	Wells, about 17 ft . . . . .	No ; none reported . . . . .	No ; no ; no . . . . .
Marysburg, N . . . . .	No . . . . .	Wells, 12 to 15 ft . . . . .	No ; no . . . . .	None . . . . .
Marysburg, S . . . . .	No . . . . .	Wells, 16 to 20 ft . . . . .	No ; no . . . . .	None . . . . .
Medora and Wood . . . . .	No . . . . .	Lakes and wells . . . . .	No ; no . . . . .	One ; no license . . . . .
Monaghan, N . . . . .	No . . . . .	Wells . . . . .	No ; none . . . . .	Five ; yes ; boiled ; no.
Monaghan, S . . . . .	No . . . . .	Wells, 25 to 35 ft . . . . .	No ; no . . . . .	None . . . . .
Minden . . . . .	No . . . . .	Springs . . . . .	No ; no . . . . .	None ; kept perfectly clean.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, results of same.
No .....	No .....	One bone boiling establishment, licensed.	No.
None .....	None .....	None .....	No.
Yes, every spring and garbage burnt.	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes .....	No .....	None .....	No.
Only by individual residents.	No .....	None .....	No
No .....	No .....	Three butchers; not licensed.	No.
No; some earth closets; contents buried.	No .....	None .....	No
No .....	No .....	None .....	Yes; party established a nuisance; was tried and convicted; fined \$50; fine remitted by guaranteeing to abate the nuisance.
No .....	No .....	None .....	None.
Village small; people look after this carefully.	No .....	None .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Mersea .....	C. Chamberlain, M. D.; Alfred Hair sine, Sec.	When complaint is made..	One diphtheria, 1 death; 6 typhoid, 2 deaths; 3 consumption, 3 deaths.
Murray .....	P. J. Clune, M.D.; T. R. Jarratt, Sec.	Only when complaint is made.	Six scarlatina, 1 death .....
Medonte .....	J. A. Harvie, M.D., and A. W. Heaslip, M.D.; T. D. Robinson, Sec.	Only when complaint is made to board.	Three diphtheria, 1 death .....
Mulmer .....	R. L. Island, M.D.; M. Laiking, Sec.	On complaint to board ....	Twenty-one diphtheria, 2 deaths; 3 consumption, 3 deaths.
Metcalf .....	A. Nixon, M. D.; John Hutton, Sec.	Yes; at intervals.....	Six diphtheria.....
Mornington ....	Dr. Johnston, J. Watson, Sec.	Yes; as required .....	One scarlatina, 1 death.....
Matilda .....	J. Harkness, M.D.; J. D. Dixon, Sec.	Action taken only on complaint,	Four typhoid .....
Maidstone.....	R. F. Rorke, M.D.; M. McHugh, Sec.	Action only on complaint being made.	A number of diphtheria, three deaths.
Middleton .....	J. W. Renwick, M.D., J. Burnett, Sec.	When complaints is made to board.	Three scarlatina, no deaths, 1 diphtheria, no death.
Malden .....	P. J. Park, M.D., Jas. Honer, Sec.	Action taken only when complaint is made.	One case typhoid, no death.....
Muskoka .....	Dr. McCarnell, R. E. Sutaby, Sec.	No .....	One typhoid, 1 death.....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxino in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year.
Yes; isolated; no isolation hospital.	None used .....	Under instructions of M. H. O.	Not regularly; no.....
Only the usual precautions taken.	No cases this year .....	No .....	No .....
No isolation hospital; houses placarded.	.....	No; not always .....	No .....
Isolation .....	Cannot say .....	No .....	No .....
.....	.....	.....	Yes; nc .....
Yes; no isolation hospital...	Have had no occasion to use it.	Yes .....	Yes; no .....
No .....	.....	No .....	No .....
Houses placarded .....	Don't know .....	Don't know .....	No; no .....
Isolated by confining all inmates of house to the premises.	.....	When necessary .....	No .....
Yes; no hospital houses placarded.	I understand it is .....	Yes .....	No .....
Houses are placarded .....	Not very much used; very unsatisfactory.	Yes .....	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells, state usual depth of water bearing stratum.	Is there any systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Mersea .....	Yes .....	Wells, 12 to 20 ft, and artesian wells.	No; no .....	One; not licensed ; no.
Murray .....	Yes .....		No; no .....	Three; yes; buried; no.
Medonte .....	Yes .....	Running streams and wells, about 40 ft.	No; no .....	Seven; not licensed ; offal discharged into running streams.
Mulmer .....	Yes .....	Wells, 20 to 50 ft .....	No; no .....	One .....
Metcalf .....	No .....	Wells, about 30 ft .....	No .....	None.....
Mornington ....	By board of health officers.	Wells, average 30 ft ....	No; no .....	Two; no ; by burning no.
Matilda .....	No .....	Wells; 12 to 50 ft .....	No; no ; no....	One .....
Maidstone.....	No .....	Wells; 10 to 50 ft., and lake.	No; no .....	Four .....
Middleton.....	No .....	Spring creeks and wells; No 10 to 50 ft.	No .....	Two ; 1 licensed, the other closed.
Madden.....	Yes .....	From wells; 100 ft. deep.	No; no .....	One ; not licensed ; fed to hogs ; no.
Muskoka .....	No .....	Wells and creeks .....	No inspection made.	Two ; not licensed .....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made. How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated.	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the cases, and results of same.
No .....	No .....	None .....	None.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	None.
No .....	No .....	None .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Mountain .....	G. Steacy, M.D.; H. Martin, Sec.	Action taken when complaints is made.	One consumption, 1 death . . .
Matchedash ....	E. W. Kitchen, Sec.....	Action taken when complaint is made to board.	None .....
Moulton .....	Dr. Hopkins, H. Logan, Sec.	No; only when complaint is made.	Seven diphtheria, 1 death; 3 consumption, 3 deaths.
Mattawan .....	No M. H. O.; Edward Jones, Sec.	No .....	None .....
Mayo .....	No M. H. O.; R. Ramsbottom, Sec.	No; no .....	None .....
Machar .....	No M. H. O.; R. Cole, Sec.	No; except when complaints is made.	One typhoid; 1 consumption, 1 death.
Monck .....	Dr. Bridgeland, W. H. Spencer, Sec.	Action taken when complaint is made.	None .....
Mariposa ....	None; J. B. Weldon, Sec.	Yes; once a year or when complaint is made.	Fourteen diphtheria, no deaths..
Malahide ....	Dr. McLay, J. Haggan, Sec.	Only when complaint is made to board.	Three or 4 scarlatina, no deaths; 3 or 4 diphtheria, no deaths; 5 typhoid.
Melanethon ....	G. Clingan, M.D.; James Brown, Sec.	Action taken only when complaint is made.	Five diphtheria, no deaths; 5 consumption, 5 deaths.
Minto.....	W. A. Harvey, M.D.; W. D. McLellan. Sec.	Action only when complaint is made.	Two scarlatina, no deaths; 4 typhoid, no deaths.

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an official of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No; none .....	No .....	No .....	No; no .....
No; no hospital .....	None required.....	None .....	No; no .....
Isolated; no hospital .....	Yes; good; all recover if used in time.	Don't know .....	No; no .....
No .....	No .....	No .....	No; no .....
.....	.....	.....	No .....
Isolation as much as possible; no hospital.	.....	Yes .....	No; no .....
Isolation when necessary .....	.....	Yes .....	No; no .....
Yes; by placing in isolated rooms; no hospital.	Yes, results good .....	Trained nurses mostly employed who look after disinfection.	Yes; no .....
Yes; no hospital .....	No; used by some; no reports.	Yes .....	Yes; yes .....
Yes .....	No .....	Not fully carried out....	Generally .....
No hospital .....	No ; so far as known .....	No .....	No; no .....

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forums for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Mountain .....	No .....	Wells; 10 to 30 ft .....	No; some cases of tuberculosis; don't know what test used.	One; not licensed; no inspection.
Matchedash .....		Wells mostly; 12 to 14 ft.	No; no .....	None .....
Moulton .....	No .....	Wells; 10 to 20 ft .....	No; no; no .....	Two; not licensed; cooked and fed to hogs; no.
Mattawan .....	No .....	Rivers and wells; 25 ft .	No; no .....	None.....
Mayo .....	No .....	Springs, running streams and wells; 3 to 46 ft.	No .....	None.....
Machar .....	Yes .....	Rivers and wells; 12 to No to 18 ft.	No .....	One .....
Monck .....	No .....	Wells; 8 to 12 ft .....	No; no .....	Two; not licensed ....
Mariposa .....	Yes .....	Mostly wells; about 20 ft.	No; not to my knowledge.	Two; not licensed ....
Malahide .....	Yes .....	Wells .....	Think so; don't know.	Eleven; yes; buried with lime; yes.
Melancthon ....	Yes .....	Wells; about 30 ft.....	No .....	Three .....
Minto .....	No .....	Wells; 15 to 25 ft .....	No; no .....	Four; yes; no .....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the re- moval made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whose is connected with pub- lic sewer.	State No. and kinds of noxious trades. (See sec. 53 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the cases, and re- sults of same.
No .....	No .....	None .....	None.
All carted on the farm lands.	No .....	No .....	None.
No .....	No .....	None .....	No
No .....	No .....	None .....	None.
No .....	No .....	None .....	No.
No .....	No .....	None .....	None.
Everyone removes their own garbage.	None .....	No .....	None.
Cleaned once a year .....	No .....	None .....	No.
Yes; by the farmers .....	No .....	None .....	No.
.....	.....	.....	None.
No .....	No .....	None .....	None

TOWNSHIPS—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it reported at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Madoc . . . . .	W. A. Dafoe, M.D.; J. R. Kitchenson, Sec.	Only when complaint is made.	Two scarlatina, no deaths . . . . .
McLean and Ridout . . . . .	No M.H.O.; W. H. Brown, Sec.	Every spring and when complaint is made.	One typhoid, no deaths . . . . .
McMurrich . . . . .	H. L. Barber, M.D.; T. Upton, Sec.	Generally in May, yearly, and when complaint is made.	No cases . . . . .
McKellar . . . . .	No M. H. O.; G. B. Lee, Sec.	Only on complaint . . . . .	None . . . . .
McKillop . . . . .	No M. H. O.; J. C. Morrison, Sec.	School premises inspected annually by board.	None . . . . .
McNabb . . . . .	S. W. Ward, M.D.; J. D. McNab, Sec.	Yes; yes . . . . .	Twenty-five scarlatina, 2 deaths; 3 diphtheria; 5 typhoid; consumption, 3 deaths.
McDougall . . . . .	T. S. Walton, M.D.; D. McFarlane, Sec.	Action taken only on complaint.	None . . . . .
McKim . . . . .	R. B. Struthers, M. D.; T. Stoddart, Sec.	Only occasionally or when complaint is made.	Five diphtheria, no deaths; 2 typhoid; 1 consumption, 1 death.
Manvers . . . . .	W. W. Nasmyth, M. D.; Alfred Ryley.	No . . . . .	No contagious diseases . . . . .
Macaulay . . . . .	S. Budgland, M. D. . . . .	Only on complaint . . . . .	No contagious diseases . . . . .
March . . . . .	G. H. Groves, M.D. . . . .	General inspection . . . . .	A large number of cases of scarlatina.

## TOWNSHIPS.—Continued.

Isolation of contagious diseases systematically carried out ? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians ? Give results in treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board ?	Does the Board make systematic inspection of the public schools ? Does it require a certificate of vaccination from new school children each year ?
Isolation when necessary . . . . .	No cases . . . . .	When thought necessary.	No . . . . .
Yes . . . . .	No experience . . . . .	Yes . . . . .	Yes . . . . .
Houses isolated when required ; also placarded ; no hospital.	Yes ; results good . . . . .	Under direction of M. H. O. No ; no . . . . .	
			No . . . . .
No ; no hospital . . . . .	Don't know . . . . .	Yes ; if necessary . . . . .	No . . . . .
Yes ; no hospital . . . . .	Am not aware of any . . . . .	Yes . . . . .	No ; no ; no . . . . .
			No . . . . .
Isolation when necessary . . . . .	Where used has been a decided success.	Carried out by M. H. O. No . . . . .	
Yes ; houses placarded . . . . .	No . . . . .	Under supervision of M. H. O. No ; no . . . . .	
		Yes . . . . .	No . . . . .
		By M. H. O . . . . .	

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by an officer of the Boards?
Madoe .....	Yes .....	Wells; 10 to 30 ft .....	No .....	Two; don't know.....
McLean and Ridout .....	Yes .....	Wells; about 20 ft.....	No; no .....	One; by boiling and burying.
MuMurrich ....	No .....	Wells; 16 ft.....	None yet .....	None.....
McKellar .....	.....	.....	.....	.....
McKillop .....	Yes; to teachers.	Wells; about 20 ft.....	No .....	One; not licensed.....
McNabb .....	No .....	Springs and wells; 10 to 15 ft.	No .....	Two; no; buried and burned and fed to pigs.
McDougall .....	.....	.....	.....	.....
McKim .....	No ; yes .....	Wells .....	No ; no .....	Two ; not licensed ....
Manvers .....	No .....	Wells .....	No ; no .....	Two slaughter houses ; no license.
Macaulay .....	No .....	Wells .....	No .....	.....
March .....	.....	.....	.....	.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
Yes .....	No .....	None .....	None.
None.....	No .....	None .....	No.
.....	.....	.....	.....
None.....	No .....	None .....	None.
.....	.....	.....	.....
No; earth closets cleaned every spring.	No .....	No .....	None.
.....	.....	.....	.....
No .....	No .....	None .....	No.
.....	.....	.....	.....
No .....	No .....	None .....	No.
.....	.....	.....	.....

TOWNSHIPS — *Continued.*

Name of Municipality.	Name of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Nottawasaga ...	Dr. MoAllister, Sec .....	Action taken only when complaint is made.	3 scarlatina, no deaths; 4 typhoid, 1 death; 5 consumption, 5 deaths.
Nissouri, East..	R. E. Fowle, M. D.; W. E. Andison, Sec.	No; no; yes .....	Typhoid pneumonia, 1 death; 4 tuberculosis, 4 deaths.
Nichol.....	Dr. Paget, J. R. Wissler, Clerk.	Yes; no; only when complaint is made.	1 typhoid, no death .....
Norwich .....	A. J. Colver, M.D.; E. McFarlane, Sec.	No .....	2 diphtheria, 2 deaths; 2 consumption, 2 deaths.
Niagara .....	R. J. Trimble, M. D.; C. Fisher, Sec.	Action taken only when complaint is made.	2 consumption, 2 deaths.....
Nipissing. ....	No M. H. O.; W. Maltby, Sec.	General inspection once each year.	None .....
Nissouri, West .	J. W. Ford, M.D., W. Lee, Sec.	Yes; 3 or 4 times during summer.	None .....
Nepean .....	J. M. Shillington, M. D.; G. O. Richardson, M.D.; F. W. Harmar, Sec.	Only on complaint.....	Scarlatina, 15 cases; diphtheria, 24 cases, 3 deaths.
Nightingale, etc.	Robertson, M. D.; J. A. Devaney, Sec.	Yes; repeated at intervals.	Scarlatina, 6 cases; tuberculosis, 1 case.
Oakley .....	No M. H. O.; Arthur Caske, Sec.	Action taken only on complaint.	Diphtheria, 1 family. 1 death....
Oakland. ....	Thomas H. Mott, M.D.; Henry Key, Sec.	.....	Tuberculosis, 1 case; 1 death....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No isolation hospital; isolation systematically carried out; whole family confined to house 30 days.	Not in general use .....	Yes .....	No .....
Not well carried out; each physician decides what means to adopt.	No .....	No .....	No; no .....
Yes; placarded; no; no....	No .....	Yes .....	No, no .....
No .....	No .....	No .....	No .....
No; no hospital .....	No .....	No .....	No .....
.....	.....	Yes .....	No .....
No .....	Cannot say .....	.....	No; no .....
Yes; as far as possible; no hospital.	By some physicians .....	No .....	No; no .....
As far as possible; patient isolated in room.	No; no case this year...	Yes .....	No .....
Sanitary inspector looks after the case.	Don't know .....	Yes .....	No .....
No isolation of contagious diseases.	.....	Under the supervision of M. H. O. ....	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Nettawasaga . . . . .	No . . . . .	Generally from wells : average 30 feet.	No . . . . .	Two ; not licensed . . . . .
Nissouri East . . . . .	Yes; to physicians.	Wells, 10 to 200 ft . . . . .	No ; not reported . . . . .	Two ; no ; no . . . . .
Nichol, . . . . .	Yes . . . . .	Wells, about 16 ft . . . . .	No ; no ; yes ; the tubercular test has been used in several cases.	Two . . . . .
Norwich . . . . .	No . . . . .	Wells, about 24 ft . . . . .	No ; none reported . . . . .	Two ; not licensed . . . . .
Niagara . . . . .	No . . . . .	Wells, 20 to 65 ft., and cisterns.	No ; none reported . . . . .	One ; not licensed . . . . .
Nipissing . . . . .	No . . . . .	Wells, 12 to 15 ft . . . . .	No . . . . .	None . . . . .
Nissouri, West . . . . .	Yes . . . . .	Wells, 20 to 30 ft . . . . .	No ; no . . . . .	Three ; licensed ; boiled and fed to hogs ; yes.
Nepean . . . . .	No . . . . .	Wells . . . . .	No ; a few cases have occurred.	Seven : yes . . . . .
Nightingale, etc. . . . .	No . . . . .	Wells . . . . .	No . . . . .	Nearest one is 3 miles away.
Oakley . . . . .	No . . . . .	Wells . . . . .	No ; no . . . . .	None . . . . .
Oakland . . . . .	No . . . . .	Wells . . . . .	No . . . . .	Three slaughterhouses : no.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. See sec. 63 Public Health Act. How licensed and regulated.	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None.....	No.
No .....	No .....	One tannery.....	No.
Yes ; once each year.....	No .....	None.....	No.
No .....	No .....	None.....	No.
No .....	No .....	None.....	No.
Yes.....	No .....	None.....	No.
No .....	No .....	None.....	No.
.....	No .....	None.....	Two prosecutions, one for depositing city night soil in the township, fined \$20 and costs; one for slaughtering animals without a license, fined \$25 and costs.
Yes; by residents .....	No .....	.....	No.
No .....	No .....	None.....	No.
No.....	.....	None.....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Oliver .....	T. S. Smellie, M.D.; Allan Shank, Sec.	No inspection .....	Diphtheria, 1 case .....
Olden .....	A. E. Fouboy, M.D.; M. W. Price, Sec.	.....	No contagious diseases.....
Onedia .....	W. E. Omstead, M.D., John Senn, Sec.	Action taken when complaint is made.	Four cases of diphtheria, 1 death ; 1 case of typhoid.
Ops .....	Thos. W. Poole, M.D.; W. F. O'Boyle, Sec.	General inspection.....	Diphtheria, 6 cases, 1 death ; typhoid, 1 case.
Oro .....	W. H. Clutton, M.D. ; H. J. Tudhope, Sec.	Only on complaint.....	Diphtheria, 2 cases, 1 death ; scarlatina, 2 cases ; tuberculosis, 2 cases, 2 deaths.
Osprey .....	John Scott, M.D.; Thomas Scott, Sec.	Action taken only on complaint.	Diphtheria, 26 cases, 2 deaths ...
Oso .....	H. N. Coulter, M.D ..	Only on complaint.....	Diphtheria, 2 cases, 1 death....
Orillia .....	G. H. Corbett, M.D.; A. Fowlie, Sec.	.....	Diphtheria, 1 case .....
Oxford, East ...	James McLurg, M. D. ; John Peers, Sec.	Yes. ....	Diphtheria, 1 case .....
Oxford, West...	Beasley, M.D. ; W. G. Francis, Sec.	General inspection once a year.	Scarlatina, 1 case ; typhoid, 2 cases : tuberculosis, 1 death.
Oxford .....	John A. Jones, M. D ; Wm. Lindsay, Sec.	Action taken only on complaint.	Tuberculosis, 1 case, 1 death ....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes.....	Yes.....	Yes.....	.....
.....	.....	.....	No; no .....
Yes; no hospital .....	Yes. ....	.....	An annual inspection .....
No hospital.....	Yes. ....	.....	.....
No hospital .....	.....	No.....	No; no .....
Yes. ....	Yes: physicians report good results.	Yes; under M. H. O....	No.....
Yes. ....	Used by M.H.O.....	In some cases .....	No; no .....
Yes. ....	Cannot say.....	No.....	No.....
Yes; houses are placarded; no hospital.	Not general .....	No.....	Yes; yearly; no. ....
.....	.....	Yes. ....	Yes; no.....
Isolation at home.....	Yes; very satisfactory..	Yes. ....	No; no .....

## TOWNSHIPS.—Continued.

Name of Municipality.	Are form for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Oliver.....	No .....	.....	No .....	None .....
Olden .....	No .....	Wells and springs .....	No .....	One slaughterhouse buried.
Oneida .....	Not to teachers .....	.....	No dairy in township.	None .....
Ops .....	Yes .....	Wells; from twelve to sixty feet.	One animal slaughtered for tuberculosis.	Five slaughterhouses; licensed.
Oro .....	No .....	Wells and springs .....	No; no test used ...	Two slaughterhouses; no; fed to hogs; no.
Osprey.....	No .....	Generally from wells; 30 to 50 feet.	No .....	Three slaughterhouses; no license.
Oso .....	No .....	Springs and wells .....	No .....	No slaughterhouses .....
Orillia .....	Yes .....	Wells; average depth 15 feet.	No .....	Two slaughterhouses; no license.
Oxford, East .....	No .....	Wells; depth 25 to 30 ft.	No .....	Two slaughterhouses; no license.
Oxford, West.....	.....	Wells and springs; 20 to 120 feet.	No; no .....	Eight slaughterhouses; generally fed.
Oxford .....	Yes .....	Wells; 18 to 20 feet....	No ; no .....	No slaughterhouses .....

## **TOWNSHIPS.—*Continued.***

TOWNSHIPS.—*Continued.*

Name of Municipality.	Name of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Oxford, North . . .	J. McWilliam, M. D., Sec.	General inspection twice a year.	
Osnabruck . . . .	David Jamieson, M. D.; H. E. Hodgins, Sec.	Only on complaint . . . .	Scarlatina, 2 cases, 1 death; tuberculosis, 9 cases, 9 deaths.
Otonabee . . . .	Shaw, M. D.; J. M. Drummond, Sec.	Cheese factories inspected and complaints investigated.	Scarlatina, 8 cases; tuberculosis, 6 deaths.
Onondaga . . . .	J. Odgen, M. D.; S. J. McKilvey, Sec.	Action taken only on complaint.	Tuberculosis, 1 case . . . .
Peel . . . .	James Wallace, M. D.; M. Henderson, Sec.	Only when complaint is made.	Diphtheria, 1 case, 1 death; tuberculosis, 3 cases, 3 deaths.
Pilkington . . . .	Robertson, M. D.; Geo. Cromar, Sec.	General inspection yearly.	Diphtheria, 4 cases; typhoid, 1 case.
Petewawa . . . .	No M. H. O.; Geo Guestin, Sec.	.....	Diphtheria, 1 case . . . .
Pelee . . . .	No M. H. O.; John McLellan, Sec.	No inspection . . . .	No contagious disease . . . .
Pittsburg . . . .	No M. H. O.; W. Murray, Sec.	Only on complaint . . . .	Tuberculosis, 4 cases . . . .
Puslinch . . . .	No M. H. O.; J. McLean, Sec.	General inspection twice a year.	Diphtheria, 4 cases, 1 death; typhoid, 2 cases; tuberculosis, 1 case.
Plantagenet, N. V.	Gaboury, M. D.; J. Bellinger, Sec.	No inspection . . . .	Typhoid, 5 cases; tuberculosis, 3 cases.

TOWNSHIPS.—*Continued.*

Isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year.
.....	.....	.....	Yes. ....
Isolation carried out in all cases except tuberculosis ..	No. ....	No. ....	No ; no .....
Houses placarded .....	No. ....	Yes. ....	No ; no .....
.....	No. ....	Yes ; where necessary ..	No. ....
General isolation.....	No .....	Yes ... ..	No ; no .....
No hospital .....	.....	Yes .....	Yes ; no .....
.....	.....	.....	No .....
No hospital .....	.....	.....	No ; no .....
.....	.....	.....	No ; nc .....
No hospital .....	.....	.....	No ; no .....
No hospital ; isolated at home	No .....	Under sanitary inspector	Systematic inspection carried out.
Fairly well : no hospital ....	Yes .....	Yes .....	No ; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Oxford, North ..	No.....	Wells; about 30 feet....	No ; no .....	Two slaughterhouses; licensed; boiled and fed to hogs; no.
Osnabruck .....	Yes. ....	Wells; from 15 to 40 feet.	No ; no cases.....	Six slaughterhouses; no license; no inspection.
Otonabee .....	No.....	Wells .....	No ; no .....	Three slaughterhouses; offal fed to hogs; no inspection.
Onondaga .....	No.....	Wells; 12 to 25 feet .....	No.....	One slaughterhouse; no inspection.
Peel .....	No .....	Wells .....	No inspection .....	None .....
Pilkington .....	No .....	Wells. 20 to 25 feet deep.	No ; no.....	None .....
Petewawa .....	No .....	Good springs and wells .....	No .....	None .....
Pelee .....	No .....	Wells and lake .....	No .....	None .....
Pittsburg .....	No .....	Wells, 15 to 20 feet .....	No ; no .....	None .....
Pushinch .....	No .....	Springs and wells, 10 to 70 feet.	.....	Two slaughterhouses, not licensed.
Plantagenet, N..	No .....	Wells. 3 to 22 feet .....	No ; no .....	Five slaughterhouses ..

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No.....	No.....	None.....	No.
No.....	No.....	None.....	No.
No.....	No.....	None.....	No.
No.....	No.....	None.....	No.
No .....	No .....	None .....	No.
Placed on land.....	No .....	None .....	No.
No .....	No .....	None .....	No.
.....	No .....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Name of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Papineau .....	No M.H.O.; Edward Jones, Secretary.	On complaint .....	No contagious diseases .....
Pickering .....	No M.H.O.; D. R. Beaton Secretary.	Annual inspection.....	Scarlatina, 11 cases; diphtheria, 9 cases, 1 death; typhoid, 6 cases; tuberculosis, 17 deaths.
Perry .....	H. L. Barber, M.D.; E. B. Clearwater. Secretary.	Annual inspection .....	Scarlatina, 1 case; diphtheria, 1 case; typhoid, 3 cases; tuberculosis, 1 case, 1 death.
Proton .....	R. M. Mitchell, M.D.; T. Laughlin, Secretary.	On complaint only.....	Typhoid, 4 cases; tuberculosis, 4 cases, 4 deaths.
Plympton .....	P. Brown, M.D.; J. K. Cairns, Secretary.	Action on complaint .....	No contagious diseases.....
Percy .....	J. M. Cleminson, M.D.; R. P. Hurlbert, Secretary	Annual inspection . . . .	Diphtheria, 1 case; typhoid, 1 case.
Pelham .....	J. C. Crow, Secretary ....	General inspection.....	Three cases of contagious diseases
Palmerston ....	J. Elkington, M. D. ; J. Allan, Secretary.	Action on complaint.....	No contagious diseases .....
Rochester .....	R. R. Rorke, M.D.; S. Ducharine, Secretary.	When complaint is made ..	Scarlatina, a few cases; diphtheria, 2 cases, 1 death; tuberculosis, a few cases, 1 death.
Rainham .....	John Fry, M.D.; R. A. Havill, Secretary.	Only on complaint.....	Diphtheria, 2 cases, 1 death. ...
Ryerson.....	Dr. Crawford; Edward Geddes, Secretary.	Action on complaint ....	Diphtheria, 4 cases, 4 deaths; typhoid, 1 case, 1 death; tuberculosis, 1 case, 1 death.

TOWNSHIPS.—*Continued.*

Isolation of contagious diseases systematically carried on? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.		
	Yes	No ; no	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?
No	Yes	No ; no	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes	No	Yes	Yes ; no
No hospital	Yes ; results good	Yes	No ; no
Yes	.....	.....	No ; no
No hospital	.....	.....	No ; no
No hospital	Yes ; good results	Yes	No ; no
No hospital	.....	.....	No
Placard the houses	Yes; very satisfactory	Yes	No
No	.....	No	No
Yes	Yes	.....	No

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state the usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Papineau .....	No .....	Wells .....	No .....	Three slaughter houses; fed to hogs.
Pickering .....	.....	Wells .....	No; one case discovered; animal destroyed.	13; licensed; offal buried.
Perry .....	No .....	Wells, 18 to 25 feet .....	No; no .....	One; not licensed .....
Proton .....	Yes .....	Wells .....	No .....	None .....
Plympton .....	Forms for M. H. O.	Wells, 20 feet .....	No; no .....	One; no license .....
Percy .....	Yes .....	Well .....	No; tuberculin test has been used....	Three; no license .....
Pelham .....	.....	.....	.....	.....
Palmerston .....	No .....	Wells, 6 to 30 feet .....	No .....	No .....
Rochester .....	Yes .....	Wells .....	No; no .....	Two; slaughter houses.
Rainham .....	No .....	Wells, 15 ft .....	No .....	None .....
Ryerson .....	No .....	Wells .....	No .....	None .....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Is there a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in the nature of the case and results of same.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
None .....	No .....	None .....	No.
No .....			No.
No .....	No .....	None .....	No.
			No

TOWNSHIPS.—*Continued.*

Name of Municipality,	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Rayside .....	No M. H. O.; Z. Reginald, Secretary.	No inspection .....	
Raleigh .....	S. N. Young, M.D.; J. G. Stewart, Secretary.	Action on complaint.....	Scarlatina, 1 case; diphtheria, 3 cases.
Reach .....	No M. H. O.; D. M. Spence, Secretary.	Yes; general inspection ..	Scarlatina, 1 case, 1 death; tuberculosis, 6 cases, 6 deaths.
Romney .....	Dr. Wright; J. W. Hodgson, Secretary.	Yes.....	Typhoid, 1 case, 1 death; tuberculosis, 1 case.
Radcliffe and Raglan.	J. E. Miller, Secretary.....		No contagious diseases.....
Rolph, Buchanan and Wylie.	W. L. Gray, M.D.; F. McCarthy, Secretary.	No .....	Diphtheria, 10 cases, 2 deaths...
Ryde .....	S. Bridgland, M.D.; Walter Tingey, Secretary..	No .....	Diphtheria, 3 cases .....
Richmond .....	A. Winters, Secretary ....	Township is in a fairly healthy condition.	
Scarboro' .....	O. Sisley, M.D.; Thomas Crawford, Secretary.	General inspection.....	Scarlatina, 70 cases, 4 deaths; diphtheria, 24 cases, 2 deaths; typhoid, 18 cases, 3 deaths; tuberculosis, 3 cases.
Sarawak .....	C. M. Lang, M.D.; John Mackenzie, Secretary.	General nspection.....	No contagious diseases.... ....
Sherbrooke .....	N. Hopkins, M. D.; Reuben Hexemer, Secretary.	No inspection .....	
Sidney .....	J. U. Simmons, M.D.; F. B. Prior, Secretary.	Action taken on complaint.	Typhoid, 1 case, 1 death; tuberculosis, 3 cases. 3 deaths.
Sarnia .....	T. G. Johnson, M.D.; M. Lowrie, Secretary.	Only on complaint.....	Diphtheria, 2 cases, 1 death; tuberculosis, 1 case, 1 death.
Saugeen .....	D. Veitch, M.D.; R. Fleming, Secretary.	General inspection.....	Diphtheria, 1 case, 1 death; tuberculosis, 2 cases, 2 deaths.

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is Diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of a n officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes .....	Yes; all cases recovered.	No .....	No; no .....
No .....	.....	No .....	No .....
Yes; placarding, etc.....	Yes; very successful .....	Yes .....	No .....
.....	Not in use .....	Yes .....	.....
Yes; no hospital .....	Yes, in use .....	No .....	No .....
Yes; looked after by sanitary inspector.	No .....	Yes .....	No; no .....
.....	.....	.....	.....
Yes .....	No .....	No .....	Annual inspection of schools.
.....	No .....	Yes .....	Yes .....
None .....	Yes, with good results .....	Yes .....	No .....
Yes .....	.....	Yes .....	No .....
No hospital .....	.....	No .....	No .....
No hospital .....	.....	Yes .....	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Rayside .....	Wells .....	No .....	None .....	
Raleigh .....	Yes .....	Wells .....	No ; no .....	Four .....
Reach .....	No .....	Wells .....	No .....	Two ; not licensed .....
Romney .....	Yes .....	Wells .....	No .....	Two ; no ; no .....
Radcliffe and Raglan .....			No .....	None .....
Rolph, Buchanan and Wylie .....	No .....		No .....	None .....
Ryde .....	No .....	Wells .....	No ; no .....	None .....
Richmond .....				
Scarboro' .....	Yes .....	Wells .....	No .....	Ten or twelve .....
Sarawak .....	Yes .....		Yes .....	One slaughterhouse .....
Sherbrooke .....	No .....	Springs .....	No .....	None .....
Sidney .....	No .....			Four slaughterhouses : no inspection.
Sarnia .....	No .....	Wells .....	One inspection made	Six slaughterhouses under inspection.
Saugeen .....	Forms supplied to M. H. O.	Wells and springs .....	No inspection .....	Five slaughterhouses .....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the re- moval made. How is the cost calculated?	Is there a public sewerage sys- tem? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecu- tions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	.....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	.....	
No .....	No .....	None .....	No
.....	No .....	None .....	No.
No .....	No .....	None .....	No.
Yes .....	No .....	None .....	No.
.....	.....	.....	No.
Yes .....	No .....	None .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality,	Name of Medical Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Sophiasburg ....	John Cryan, M.D.; C. H. Wright, Sec.	Only on complaint.....	Tuberculosis, 1 case, 1 death....
Saltfleet .....	B. E. Thompson, M.D.; R. R. Smith, Sec.	Action on complaint.....	diphtheria, 14 cases, 5 deaths; typhoid, 2 cases.
Sandwich East..	D. Bechard, M.D.; M. Renaud, Sec.	When complaint is made .	Scarlatina, 2 cases; diphtheria, 1 case; tuberculosis, 2 cases, 2 deaths.
Stamford.....	J. M. Dee, M.D.; F. A. Hutt, Sec.	General inspection.....	Scarlatina, 4 cases; typhoid, 1 case.
Sebastopol .....	No M. H. O .....	.....	No contagious diseases.....
Sunnidale ....	George Hunt, M.D.; Geo. Burrows, Sec.	Only on complaint.....	Diphtheria, 6 cases, 3 deaths ....
Sydenham .....	A. C. Sloane, M.D.; James Cannon, Sec.	Only on complaint.....	Typhoid, 4 cases; tuberculosis, 5 cases, 5 deaths
Seneca .....	No M. H. O.; A. Williams, Sec.	Yes .....	No contagious diseases.....
Sandfield .....	Dr. Barry; Wm. Hare, Sec.	No inspection .....	No contagious diseases.....
Sheffield .....	C. W. Clark, M.D.; J. Aylsworth, Sec.	Action on complaint .....	Tuberculosis, 5 cases, 5 deaths...
Scott .....	No M.H.O.; Wm. Nelson, Sec.	No inspection .....	No contagious diseases.....
Sault St. Marie	Dr. Gibson; W. C. Nixon, Sec.	Action on complaint.....	Tuberculosis, 1 case, 1 death ...
Somerville.....	K. S. Frost, M.D.; S. Sud-daby, Sec.	.....	Tuberculosis, 1 case, 1 death ....
Stisted .....	No M.H.O.; T. Lakeman, Sec.	On complaint .....	None .....
Southwold .....	D. Smith, M.D.; M. Campbell, Sec.	General inspection.....	Diphtheria, 3 cases, 1 death; typhoid, 2 cases; tuberculosis, 4 cases, 4 deaths.
Sullivan .....	R. H. Orton, M.D.; A. Stephen, Sec.	Only on complaint.....	Tuberculosis, 1 case, 1 death ....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No; no hospital.....	.....	No .....	No ; no .....
Yes.....	Yes, good results .....	Under personal supervision of M. H. O	Annual inspection.....
No hospital.....	No .....	Yes .....	No .....
No hospital .....	No .....	No .....	Yes .....
No hospital .....	No.....	.....	.....
Yes.....	.....	No .....	No .....
Yes.....	No .....	Yes. ....	No ; no .....
No hospital .....	.....	Yes .....	No .....
.....	.....	.....	No .....
No .....	.....	No .....	No .....
No .....	.....	Partially so.....	No. ....
No hospital .....	.....	.....	No. ....
Yes .....	.....	Yes .....	No. ....
Yes .....	No. ....	Yes .....	No. ....
By placarding .....	Yes .....	Under supervision of M. H. O.	Yes .....
Yes .....	.....	Yes .....	No ; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells, state usual depth of water-bearing stratum.	Is there systematic inspection of dairy cows made during the year. Have cases of tuberculosis occurred, and, if so, whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Sophiasburg . . . . .	No forms . . . . .	Town wells . . . . .	No; no . . . . .	Two slaughterhouses not licensed.
Saltfleet . . . . .		Wells . . . . .	No; no . . . . .	Four slaughterhouses; offal fed to hogs.
Sandwich, East . . . . .	No forms . . . . .	Wells, 8 to 20 ft . . . . .	No . . . . .	Five slaughterhouses; offal buried.
Stamford . . . . .		Wells, 30 to 40 ft . . . . .	Yes. . . . .	Three slaughterhouses; offal fed to hogs.
Sebastopol . . . . .		Wells and springs . . . . .		
Sunnidale . . . . .	No . . . . .	Wells . . . . .	No . . . . .	One slaughterhouse . . . . .
Sydenham . . . . .	Yes . . . . .	Wells . . . . .	No . . . . .	No slaughterhouses . . . . .
Seneca . . . . .	No . . . . .	Wells and springs, 30 to 60 ft. . . . .	No . . . . .	None in township . . . . .
Sandfield . . . . .	No . . . . .	Springs and wells . . . . .	No . . . . .	
Sheffield . . . . .	No . . . . .	Wells . . . . .	No . . . . .	Two slaughterhouses; no inspection.
Scott . . . . .	No . . . . .	Not reported . . . . .	No . . . . .	
Sault St. Marie . . . . .	No . . . . .	Springs and wells . . . . .	No . . . . .	One slaughterhouse . . . . .
Somerville . . . . .			No . . . . .	
Stisted . . . . .	No . . . . .	Wells . . . . .	No . . . . .	None . . . . .
Southwold . . . . .	No . . . . .	Wells, about 20 feet . . . . .	Yes . . . . .	Eight <sup>h</sup> slaughterhouses; inspection during warm weather.
Sullivan . . . . .	Yes . . . . .	Wells, 10 to 20 feet . . . . .	No . . . . .	One slaughterhouse; inspected.

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage system? If so, what proportion of houses do whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
No; no .....	No .....	.....	No.
No .....	No .....	None .....	No.
No .....	No .....	One .....	No.
No .....	.....	None .....	No.
No .....	No .....	.....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.
No .....	.....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
Garbage burned .....	No .....	None .....	No.
Householders compelled to remove.	No .....	One tannery .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	On complaint .....	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint is made to Board.	Contagious diseases,
Scugog .....	No M.H.O.; John Foy, Sec.	On complaint .....		Diphtheria, 1 case, 1 death .....
Strong .....	A. Carmichael, M. D.; John Carter, Sec.	Only when complaint is made.		.....
Stephen .....	T. Wicket, M.D.; Chester Prouty, Sec.	General inspection.....	.....	Diphtheria, 2 deaths; typhoid, 1 death; tuberculosis, 3 deaths..
Stanhope.....	C. D. Curry, M.D.; F. Hoover, Sec.	Only on complaint.....		No contagious diseases.....
Stafford .....	No M.H.O.; Wm. Hawkins, Sec.	No inspection .....		No contagious diseases.....
Sombra .....	Dr. D. K. Slenton, M.H.O.; Orra Bishop, Sec.	Action taken when complaint is made.		Ten scarlatina, no deaths; 5 diphtheria, 3 deaths; 1 typhoid, 2 consumption, 2 deaths.
Tecumseth .....	W. C. Law, M. D.; H. stone, Sec.	.....		No contagious diseases.....
Thorah.....	A. Graut, M.D.; J. Mc Arthur, Sec.	Only on complaint.....		Diphtheria, 10 cases; 1 death...
Theessalon .....	No. M. H. O. ; T. E. Clin- tcn, Sec.	Action taken on complaint.		No contagious diseases.....
Tay .....	No M. H. O. ; S. L. Mont- gomery, Sec.	When complaint is made..		Scarlatina, several cases; typhoid, 1 case, 1 death.
Toronto .....	M. Sutton, M.D.; Wm. Cook, Sec.	Action taken on complaint.		Scarlatina, 11 cases; diphtheria, 1 case; typhoid, 4 cases; tuberculosis, 1 case.
Trafalgar .....	M. McCrimmon, M. D.; Charles Hall, Sec.	Only on complaint.....		Scarlatina, 5 cases, 1 death; typhoid, 3 cases; tuberculosis, 1 case, 1 death.

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give result of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Isolated at home .....	Not that I am aware of .....	No .....	No .....
.....	.....	Yes .....	No .....
Isolation at home .....	Yes; results good .....	Yes .....	No .....
Isolation at home .....	No. ....	Yes .....	No; no. ....
No .....	.....	.....	No .....
Houses placarded; no isolation hospital.	Yes; where used entirely successful.	Yes .....	No; no. ....
.....	.....	None .....	No .....
Yes; no hospital.	Yes; all cases where it was used recovered.	Yes .....	Yes .....
No .....	.....	No .....	No; no. ....
No .....	No .....	No .....	No; no. ....
Isolated at home .....	Yes .....	Yes .....	No .....
As far as possible .....	No .....	Yes .....	No; no .....

TOWNSHIPS.—*Continued.*

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If wells, state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred? and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by an officer of the Board?
Seugog .....	No .....	Wells .....	No .....	No slaughterhouses ....
Strong .....	No .....	.....	No .....	No slaughterhouses ....
Stephen .....	Yes .....	Wells, 8 to 50 ft .....	No .....	Three; not licensed....
Stanhope .....	No .....	Wells .....	No .....	None .....
Stafford .....	.....	Wells, 16 to 20 feet.....	No .....	None .....
Sombra .....	No .....	Cisterns, 10 to 14 feet; No; no; no..... wells, 60 to 130 feet.	.....	Two; not licensed; don't know.
Tecumseh .....	No .....	Wells .....	No .....	None .....
Thorah .....	Yes .....	Wells; 15 to 18 feet .....	No; no .....	Two slaughterhouses...
Thessalon .....	No .....	Wells and springs .....	No; no .....	One slaughterhouse; fed to hogs; no license.
Tay .....	No .....	Wells; average depth about 40 feet.	No; no .....	Three slaughterhouses; no license.
To onto .....	No .....	Wells .....	No .....	Twelve slaughterhouses.
Trafalgar .....	Yes .....	Wells .....	No .....	Three slaughterhouses..

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is the cost calculated?	Is there a public sewerage sys- tem? If so, what proportion of houses to whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecu- tions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
.....	.....	None .....	No.
Not much attention given to this.	No .....	None .....	No.
.....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	No .....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	.....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	.....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Tyendinaga ....	H. O. Lanfear, M. D.; A. B. Randall, Sec.	No inspection .....	Diphtheria, 6 cases, 1 death; tuberculosis, 4 cases, 4 deaths.
Torbolton ....	G. H. Groves, M. D. ....	General inspection .....	Diphtheria, 13 cases; a few cases of scarlatina; typhoid, 1 case.
Tosorontio. ....	J. J. Williams, M. D.; Thomas Irwin, Sec.	Only on complaint.....	Typhoid, 2 cases. ....
Tilbury, North .	A. Lemire, M. D.; J. A. Trimblay, Sec.	Only on complaint.....	Tuberculosis, 3 cases, 3 deaths ..
Turnberry ....	C. A. Toole, M. D.; John Burgess, Sec.	Action taken only on complaint.	Scarlatina, 3 cases; typhoid, 3 cases; tuberculosis, 1 case, 1 death.
Usborne ....	A. K. Ferguson, M. D.; Francis Morley, Sec.	.....	Scarlatina, 8 cases, 1 death; diphtheria, 1 case; typhid, 3 cases, none; tuberculosis, 15 cases, 2 deaths.
Uxbridge.....	R. E. Darling, M.D.; S. A. Flumerfelt, Sec.	Only on complaint.....	Scarlatina, 8 cases; diphtheria, 5 cases 1 death.
Unorganized Tp. Algoma.) ....	.....	.....	No contagious diseases.....
Veru'am. ....	C. E. Bonnell, M.D.; G. W. Taylor, Sec.	.....	Typhoid, 1 case, 1 death; tuberculosis, 3 cases, 3 deaths.
Vespra ....	Dr. Wallwin, Geo. Sneath, Sec.	Only on complaint.....	No contagious diseases.....
Wollaston ....	T. J. Kelly, M. D.; Geo. Orr, Sec.	.....	.....

## TOWNSHIPS.—Continued.

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes; no hospital .....	Anti-toxine used with satisfactory results.	Not always .....	No; no .....
Yes .....	No .....	Yes .....	No; no .....
.....	.....	Yes .....	Yes .....
No hospital .....	.....	Under supervision of M. H. O.	No .....
Yes; no hospital .....	Yes .....	Usually by attending physician.	.....
Isolated at home .....	Only used in one case .....	Yes; by M. H. O. ....	No .....
.....	.....	No .....	No .....
Yes .....	No .....	Under M. H. O .....	No; no .....
No .....	No .....	Yes .....	No .....
.....	No .....	Yes .....	No .....

TOWNSHIPS.—*Continued.*

Name of Municipality	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberclosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcases by any officer of the Board?
Tyendinaga ....	No .....	Wells and springs.....	No .....	Six slaughterhouses....
Torbolton .....				
Tosorontio. ....	Yes.....	Wells ; 18 feet.....	No .....	Two slaughterhouses ; no inspection.
Tilbury, North..	Yes.....	Wells ; 12 feet.....	No .....	None. ....
Turnberry ....	No .....	Wells ; 10 to 35 feet.....	No .....	Five ; none licensed....
Usborne.....	Yes.....	Wells ; 20 to 40 feet ....	No ; yes.....	Three slaughterhouses ; not licensed.
Uxbridge.....	Yes.....	Wells ; from 12 to 100 ft.	No .....	One ; no license .....
Unorganized Tp. (Algoma) ....	No .....	Bad water.....	No .....	None. ....
Verulam. ....	No .....	Wells ; 8 to 50 feet.....	No ; yes.....	Two ; offal fed to hogs.
Vespra .....	Yes... .....	Wells .....	No .....	None.....
Wollaston ....	No . .....	Springs .....	No ; no .....	None.....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is the cost calculated?	Isthere a public sewerage system? If so what proportion of houses to whole is connected with public sewers.	State No. and kinds of noxious trades. (See sec. 63 Public Health Act). How licensed and regulated?	Have there been any prosecutions during the year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No.....	One tannery .....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.
No .....	No.....	None.....	No.

TOWNSHIPS.—*Continued.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it repeated at intervals every year? or is action taken only when complaint of nuisance is made to Board?	Contagious diseases.
Widdifield .....	J. B. Carruthers, M.D.; C. W. Thompson, Sec.	Only on complaint.....	No contagious diseases .....
Waterloo .....	H. G. Roberts, M.D.; O. Rust, Sec.	Annual inspection .....	Diphtheria, 60 cases; typhoid, 20 cases; tuberculosis, 12 cases.
Walpole.....	No M. H. O.; Jas. Mowat, Sec.	Only on complaint.....	Scarlatina, 1 case; tuberculosis, 4 cases.
Williams, East ..	John Gunn, M.D.; David Wyllie, Sec.	Action on complaint.....	Typhoid, 1 case, 1 death.....
Wallace .....	L. W. Thompson, M.D.; R. G. Roberts, Sec.	Action on complaint.....	Typhoid, 1 case, 1 death .....
Watt .....	No M. H. O.; H. W. Gill, Sec.	Yes.....	No contagious diseases.....
Wilmot .....	W. R. Nichols, M.D., J. A. Butler, M.D.; F. H. Holwell, Sec.	Yes.....	Diphtheria, 2 cases; typhoid, cases, 1 death.
Whitby .....	J. J. Moore, M. D.; D. Holiday, Sec.	Action on complaint .....	Tuberculosis, 2 deaths .....
Warwick .....	J. A. McLeay, M.D.; W. H. Stewart, Sec.	Only on complaint.....	Scarlatina, 10 cases, 1 death; diphtheria, 9 cases, 2 deaths; typhoid, 7 cases; tuberculosis, 2 cases, 2 deaths.
Woolwich .....	W. O. Robinson, M.D.; J. L. Widman, Sec.	Action on complaint .....	Diphtheria, a number of cases...
Wawanosh, W.	T. E. Case, M.D.; W. S. McCristie Sec.	Only on complaint .....	Tuberculosis, 2 cases .....

TOWNSHIPS.—*Continued.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
No hospital .....	No .....	No .....	No .....
Yes; no hospital .....	Yes; results good .....	Yes .....	Yes; no .....
Houses placarded .....	Generally left to physicians.	No .....	No; no .....
Yes .....	Not generally uscd.....	Not under personal supervision of board.	No; no .....
.....	.....	.....	Yes .....
Yes .....	Yes; very satisfactory .....	.....	Yes .....
.....	No .....	Yes .....	Yes; no .....
Yes .....	Yes; results very satisfactory.	Yes, by M. H. O .....	No .....
General isolation of contagious diseases.	Anti-toxine favorably spoken of.	Yes .....	.....
Yes .....	.....	Yes .....	No; no .....

## TOWNSHIPS.—Continued.

Name of Municipality.	Are forms for notification by teachers and M. H. O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughter houses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board.
Widdifield .....	No .....	Springs .....	No inspection .....	Two slaughter houses ; no license ; fed to hogs.
Waterloo .....	Yes .....	Wells ; average depth 25 feet.	Yes .....	15 slaughter houses ....
Walpole.....	Yes .....	Wells .....	No .....	One slaughter house; no license.
Williams, East ..	To M. H. O....	Wells, 16 to 20 feet.....	No .....	Two slaughter houses ; no license.
Wallace .....	Yes .....	Wells .....	No ; no .....	One ; not licensed.....
Watt .. ..	Yes .....	Wells and springs .....	No ; no .....	None .. ....
Wilmet .....	No .....	Generally wells .....	No .....	Three or four ; under license.
Whitby .....	No .....	Wells, 20 to 50 feet .....	No .....	Two, not licensed.....
Warwick .....	Yes .....	Wells, 10 to 20 feet ....	No inspection .....	None .. ....
Woolwich .....	No .....	.....	.....	.....
Wawanosh, W..	Yes .. ....	Wells, 20 to 30 feet .....	No .....	No slaughterhouses....

TOWNSHIPS.—*Continued.*

Is there systematic removal of garbage and night soil? If so on what basis of cost is the removal made. How is cost calculated?	Is there a public sewerage system? If so what proportion of houses of whole is connected with public sewers?	State No. and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
.....	.....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	One tannery; one cheese factory.	No.
Yes .....	No .....	None .....	No.
.....	No .....	.....	No.
No .....	No .....	None .....	No.
No .....	.....	One glue factory .....	No.
No .....	No .....	None .....	No.

TOWNSHIPS.—*Concluded.*

Name of Municipality.	Names of Medical Health Officer and Secretary of Board.	Is there general sanitary inspection? Is it reported at intervals every year? or is action taken only when complaint of nuisance is made to Board.	Contagious diseases.
Whitchurch ....	S. L. Friel, M.D.; J. C. Lundy, Sec.	Action upon notice .....	Scarlatina, 7 cases, 4 deaths ....
Wainfleet ....	W. B. Hopkins, M.D.....	Only when complaint is made.	Diphtheria, 30 to 40 cases, 4 deaths ; tuberculosis, 6 cases, 6 deaths.
Westminster ...	G. S. Rutledge, M.D.; H. Anderson, Sec.	General inspection.....	Tuberculosis, 7 deaths .....
Willoughby ....	M. K. Colliver, M.D. ; H. N. Beam, Sec.	Inspection on complaint .....	
Walsingham, N.	J. M. Tweedale, M. D. ; John Phelan, Sec.	No inspection .....	Diphtheria, 1 death; tuberculosis, 2 deaths.
Wilberforce ....	J. Chanonhouse. M. D. ; Geo. Stone, Sec.	Action on complaint.....	Diphtheria, 9 cases, 2 deaths ; Tuberculosis, 2 cases, 2 deaths.
Woodhouse ....	J. F. Jolly, M.D. ; Frank Bowlby, Sec.	Only on complaint.....	Scarlatina, 4 cases ; typhoid, 1 case, 1 death ; tuberculosis, 2 cases, 2 deaths.
York .....	T. J. Page, M.D. ; W. A. Clarke, Sec.	General inspection, and report monthly.	Scarlatina, 87 cases ; diphtheria, 27 ; typhoid, 3 cases ; tuberculosis, not reported ; 8 deaths during the year.
Yonge & Escott, Front .....	J. W. Lane, M.D. ; John F. Kelly, Sec.	No action taken ; on complaint.	Diphtheria, 4 cases ; tuberculosis, 2 cases.
Zone .....	A. D. Graham, M. D. ; Yes Henry Osborne, Sec.		Diphtheria, 4 cases, 1 death ....
Zorra, East ....	A. N. Hatson, M.D. ; Jas. Anderson, Sec.	Yes, of slaughter houses, piggeries, schools a n d cheese factories.	Scarlatina, 13 cases ; typhoid, 12 cases, 3 deaths ; tuberculosis, 2 cases.

TOWNSHIPS—*Concluded.*

Is isolation of contagious diseases systematically carried out? State methods adopted and whether any isolation hospital exists.	Is diphtheria anti-toxine in common use by physicians? Give results of treatment in all cases where possible.	Is disinfection after contagious diseases carried out under the personal supervision of an officer of the Board?	Does the Board make systematic inspection of the public schools? Does it require a certificate of vaccination from new school children each year?
Yes .....	..... Under direction of physician in attendance.	No .....	No .....
Yes; no hospital .....	Some doctors use it .....	No .....	No; no .....
.....	..... No .....	No .....	No .....
Yes .....	Yes .....	Yes .....	No; no .....
No .....	Think not in use .....	No .....	No .....
No; no hospital .....	No .....	Under direction of M.H.O.	No; no .....
To a certain extent .....	By some physicians; results good.	No .....	No .....
Yes .....	No report to board .....	Yes, under M.H.O. and Inspector.	Yes .....
No .....	No .....	No .....	No .....
As well as possible by the parties themselves.	In some cases, with success.	Yes .....	Yes .....
Yes .....	Yes, fairly successful ..	Occasionally .....	Yes; no .....

TOWNSHIPS.—*Concluded.*

Name of Municipality.	Are forms for notification by teachers and M.H.O. of contagious diseases supplied?	Give the source of water supply used on the premises. If from wells state usual depth of water bearing stratum.	Is there systematic inspection of dairy cows made during the year? Have cases of tuberculosis occurred, and state whether the tuberculin test has been used.	How many slaughterhouses in municipality? Are they licensed on evidence of being kept in good sanitary condition? How is offal disposed of? Is there systematic inspection of carcasses by any officer of the Board?
Whitchurch ....	Yes .....	Wells .....	No .....	Two ; offal fed to hogs.
Wainfleet ....	No .....	Wells .....	No ; no .....	No license .....
Westminster ...	Yes .....	Wells, 20 to 70 feet ....	No .....	Three slaughterhouses ; offal fed to hogs.
Willoughby ....	No .....	Wells and Niagara river.	No .....	Three ; not licensed....
Walsingham, N.	No .....	Wells, 6 to 20 feet.....	No .....	One slaughterhouse....
Wilberforce ....	No .....	Wells .....	No ; no .....	No slaughterhouses.... a)
Woodhouse ....	Yes .....	Wells .....	No ; no .....	Two slaughterhouses ; yes.
York .....	Yes .....	Wells, 35 feet .....	No; dairies inspected by officers of Toronto.	About 25 ; yes ; in most cases removed ; premises inspected.
Yonge & Escott, Front.....	No .....	Wells .....	No .....	None. ....
Zone .....	No .....	Wells .....	No .....	Three ; no ; buried ; no
Zorra, E .....	Yes .....	Wells, 20 to 50 feet .....	No .....	Eight ; buried or burnt ; no.

TOWNSHIPS—*Concluded.*

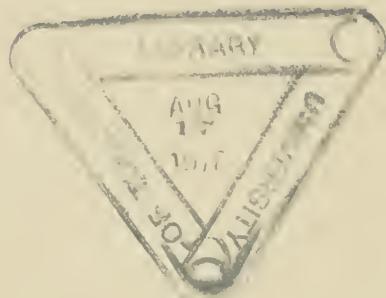
Is there systematic removal of garbage and night soil? If so, on what basis of cost is the removal made? How is cost calculated?	Is there a public sewerage system? If so, what proportion of houses of whole is connected with public sewers?	State No., and kind of noxious trades. (See sec. 63 Public Health Act.) How licensed and regulated?	Have there been any prosecutions during year under Public Health Act? State in detail the nature of the case, and results of same.
Yes .....	No .....	None .....	No.
Householder.....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	No .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	None .....	No.
No .....	No .....	No .....	No.
No .....	No .....	Two ; Harris factory and Government piggery.	No.
No .....	No .....	None .....	No.
Yes ; \$4 per year in each case.	No .....	None .....	No.
.....	No .....	None .....	No.











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